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VOL. 14 No. 1 January 3, 1964

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Cooperative ECONOMIC INSECT REPORT

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Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 January 3, 1964 Number 1

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG population in rank wheat reduced by extended cold weather in Oklahoma. (p. 3).

GREEN PEACH APHID increasing on sugar beets in Maricopa County, Arizona. (p. 4).

BARK BEETLES causing considerable fades in sugar and ponderosa pines in Mt. Home State Forest and damaged same hosts in 500-acre stand on Sequoia National Forest, both in California. (p. 5).

DETECTION

SOUTHWESTERN CORN BORER collected for first time in Wayne County, Missouri; infestation not economic. (p. 3).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 6). This is first time since March 1963 that no cases were reported in the eradication area.

Change in spelling of family name of aphids. (p. 7).

Reports in this issue are for week ending December 27, unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

The Weather Bureau's 30-day outlook for January calls for temperatures to continue to average below seasonal normals over the eastern quarter of the Nation and also in the West Gulf States. In the western half of the country warming to prevailingly above normal levels is indicated, except for near normal in the California valleys. In areas not specified near normal averages are in prospect. Greater than normal precipitation, much of it in the form of snow, is expected along the Atlantic Seaboard. Near normal amounts are predicted for the Appalachian area, the Gulf States, the Great Plains, and the Pacific Northwest. In the remainder of the Nation subnormal precipitation is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING DECEMBER 30

A storm, centered south of the Florida Panhandle early Monday, December 23, moved northeastward across Florida and along the coast, concentrating its fury on the Middle Atlantic States at midday. Up to 12 inches of snow fell over some counties in southwestern Virginia. Drifts up to 4 feet blocked roads in Arkansas and Tennessee. The Weather Bureau issued heavy snow warnings for the Appalachian Mountains and northeastward to New England.

As the storm in the East diminished in intensity and the snow tapered off to flurries, a vigorous new storm developed off the coast of British Columbia. Strong winds and rain lashed the Washington coastline.

Christmas Day was bright and sunny over the Great Plains. Warm, westerly winds pushed the temperatures into the 60's at some stations. Trinidad, Colorado, registered 68° Wednesday afternoon. Two days of moderate temperatures melted much of the snow that had covered the central Great Plains before a mass of arctic air poured southward across the Canadian border and the cold weather pattern returned to the vast area from the Rocky Mountains to the Atlantic.

The Southern States remained dry. Rain fell along the Washington, Oregon, and northern California coast, snow or drizzle in the interior portions of the Pacific Northwest, and snow fell over parts of the Great Plains, the upper Mississippi Valley, the Great Lakes region, and the upper Ohio Valley.

By the end of the week, high pressure and cold temperatures prevailed over the eastern half of the Nation. Another high pressure area was centered over the Great Basin. Temperatures ranged from far below zero in upstate New York and northern New England to the 80's in southern California. Another storm was approaching the Pacific Northwest and a weak low in the eastern part of the Gulf of Mexico touched off showers in Florida.

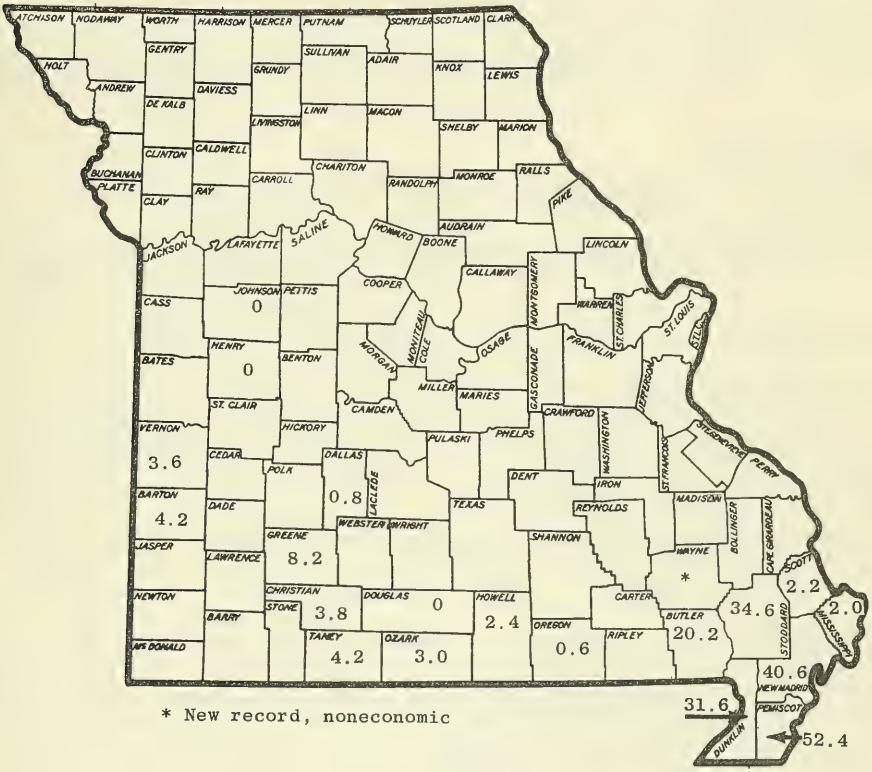
Temperatures for the week averaged above normal over most of the Nation from the Pacific Ocean to the western Great Plains. An exception was in the interior valleys of California where temperatures averaged slightly below normal. Temperatures averaged below normal over most of the eastern half of the Nation. This area was cold at the beginning of the week, warmer at midweek, and cold again at the end of the week. Temperature departures ranged from +12° at Great Falls, Montana, to -13° at Memphis, Tennessee.

Only light precipitation, generally less than 0.50 inch, fell over most of the Nation. Wide areas received no precipitation or only light snow flurries. More than 1.00 inch fell along the Washington, Oregon, and northern California coast and a mid-Atlantic area that extended from Augusta, Georgia, to Norfolk, Virginia. A small area in central Florida also received more than 1.00 inch. (Summary supplied by U.S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

SOUTHWESTERN CORN BORER (Zeadiatrea grandiosella) - MISSOURI - Survey of 100 stalks per field with 5 fields per county sampled shows percent girdled per county on map below. Wayne County is a new record; no economic infestation. Counties with high percent of stalks girdled all in extreme southeast area. Percent of stalks girdled in southwest area lower than in past few years; probably due to extreme dry condition in area. (Munson, Thomas, Wood).

Southwestern Corn Borer Survey in Missouri - 1963



* New record, noneconomic

A CRAMBID MOTH (Chilo loftini) - CALIFORNIA - Larvae medium in experimental sugarcane at El Centro, Imperial County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 8-15 adults and nymphs per linear foot in winter wheat fields near Clovis, Curry County. (N. M. Coop. Rpt.). OKLAHOMA - Extended cold spell dropping to 1° F. reduced population in rank wheat from approximately 160 per linear foot to fewer than 20 per linear foot. Many dead aphids on ground and on plants. (Okla. Coop. Sur.).

FRUIT INSECTS

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Larvae medium on citrus leaves and stems at San Diego, San Diego County. (Cal. Coop. Rpt.).

Coccids in Florida - Sweet orange nursery trees infested with Aonidiella citrina, Lepidosaphes beckii, L. gloverii, Parlatoria pergandii and Unaspis citri; U. citri most severe at Mascotte, Lake County. (Henderson, Brown, Dec. 20).

A SOFT SCALE (Saissetia sp.) - FLORIDA - Light on leaves of commercial grape at Dania, Broward County. (McLean, Clinton, Dec. 16).

MITES - ALABAMA - Recent examination of pecan branches revealed numerous undetermined species; apparently hibernating but appear to be feeding on buds. (McQueen). FLORIDA - Phyllocoptruta oleivora light to moderate on several kinds of citrus at several localities in Brevard County. (Bentley, Holley, Dec. 12, 13).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Increasing on sugar beets in Maricopa County; averaged 130 per 100 sweeps. (Ariz. Coop. Sur.).

POTATO TUBERWORM (Gnorimoschema operculella) - UTAH - Situation in southern Iron and northern Washington Counties proved light and rather unimportant. (Knowlton).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infestations continue to be found in Pinal and Maricopa Counties; in Pinal County, 1 infestation located in Red Rock area and 2 in Winkelman area, which is a new record for this area. Approximately 2,400 acres now infested in Pinal County. (Ariz. Coop. Sur.).

GRANULATE CUTWORM (Feltia subterranea) - CALIFORNIA - Noted in gin trash at Poso, Kern County. (Cal. Coop. Rpt.).

A NOCTUID MOTH (Proxenus mindara) - CALIFORNIA - Larvae medium in gin trash at Tejon, Mettler, Poso, Vineland, Buttonwillow, Kern Lake, Zerker, Old River and Sunset in Kern County and light at Bard, Holtville and Calipatria in Imperial County. (Cal. Coop. Rpt.).

A PYRAUSTID MOTH (Udea profundalis) - CALIFORNIA - Larvae noted in gin trash at Buttonwillow, Kern County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae in cotton bolls at Goshen, Tulare County, and light in gin trash at Brawley and Winterhaven, Imperial County. (Cal. Coop. Rpt.).

BOLL WEEVILS (Anthonomus spp.) - ARIZONA - Total of 42 fields found infested in Pinal County. All but one along southern boundary of cotton area. No wild cotton known to grow in desert area near this infestation. (Ariz. Coop. Sur.).

A WEEVIL (Hypera brunneipennis) - CALIFORNIA - Adults light in gin trash at Winterhaven and Calipatria, Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Dendroctonus monticolae and D. brevicomis causing considerable numbers of fades in both sugar and ponderosa pines in Mt. Home State Forest. Partial second generation developed this year. Cold weather stopped flight. (N. R. Hunt, USFS). D. brevicomis and Ips sp. damaged ponderosa and sugar pines in groups and single trees in a 500-acre stand in Spear Creek and Capinero Creek on the Sequoia National Forest. Weather still favorable for insect buildup. (E. V. Anderson, Jr., USFS). Phloeosinus cupressi adults medium in twigs of Italian cypress at Montalvo, Ventura County. (Cal. Coop. Rpt.).

A SCOLYTID BEETLE (Coccotrypes dactyliperda) - CALIFORNIA - Mining in seeds of Washington palm at San Bernardino, San Bernardino County. (Cal. Coop. Rpt.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Larvae medium on white fir at Susanville, Lassen County. (Cal. Coop. Rpt.).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Medium on acacia at San Diego, San Diego County. (Cal. Coop. Rpt.).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Heavy infestations found in English ivy and other ornamentals in Phoenix area, Pinal County. (Ariz. Coop. Sur.).

BLACK CITRUS APHID (Toxoptera aurantii) - FLORIDA - Moderate on camellia shrubs at Pierson, Volusia County. (Roberts, Dec. 10).

A TREEHOPPER (Umbonia crassicornis) - FLORIDA - Severe on small percent of powder-puff (Calliandra sp.) shrubs sampled at Fort Lauderdale, Broward County, December 20 and light on earleaf acacia (Acacia ariculaeformis) at Hollywood, Broward County, December 3. (McLean, Clinton).

CACTUS SCALE (Diaspis echinocacti) - CALIFORNIA - Heavy on Christmas cactus at Oroville, Butte County. (Cal. Coop. Rpt.).

STRIPED MEALYBUG (Ferrisia virgata) - ALABAMA - Isolated heavy infestation noted on magnolia in Lee County. (McQueen).

A PIT SCALE (Cerococcus sp.) - FLORIDA - Moderate on stems of hibiscus at North Miami, Dade County. (Hickman, Dec. 18).

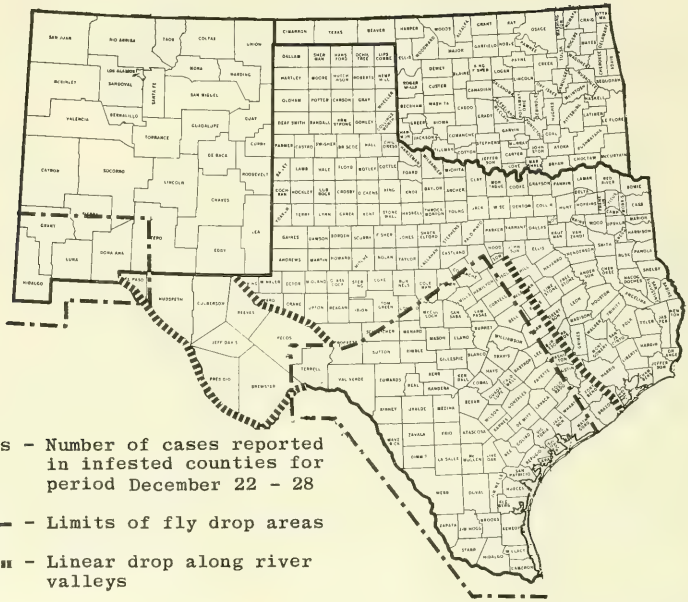
INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - UTAH - Treatments for control made on 2,500 cattle in Iron County; very few treated for combined lice and grub control with systemics. (Knowlton, Sjoblom). NEW MEXICO - Beginning to appear on range animals in cattle herds in Sierra, Guadalupe and San Miguel Counties. (N. M. Coop. Rpt.).

HEAD LOUSE (Pediculus humanus capitis) - ARIZONA - Appearance in several homes in Casa Grande, Pinal County, caused considerable concern to homeowners. (Ariz. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

The period December 22 - 28 was the first time since March 1963 that no screw-worm cases were reported in the eradication area. A cold spell was experienced in southern TEXAS, with temperatures in the Brownsville area below freezing. A total of 165,489,050 sterile screw-worm flies was released during the period. This was the highest number of sterile flies released during 1963. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period December 22 - 28

-·-·- - Limits of fly drop areas

▪▪▪▪▪▪▪▪▪▪▪ - Linear drop along river valleys

HOUSEHOLD AND STRUCTURAL INSECTS

RED FLOUR BEETLE (Tribolium castaneum) - ALABAMA - Continues problem in home pantry; source of infestation not eliminated and numerous individuals continue to appear. (McQueen).

LESSER GRAIN BORER (Rhyzopertha dominica) - ALABAMA - Infested pantry in home in Lee County; source of infestation traced to bunch of wheat heads used for ornament. (McQueen).

FOREIGN GRAIN BEETLE (Ahasverus advena) - ALABAMA - Heavy feeding noted on mold and outer portion of country-cured hams stored in slightly damp basement of home in Lee County. (McQueen).

DERMESTID BEETLES - UTAH - Infested paprica in home at Ogden, Weber County, and cereals in home at Willard, Box Elder County. (Knowlton).

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Troublesome in several homes in East Millcreek area, Salt Lake County. (Knowlton).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - FLORIDA - Larvae infested stored grains of oats, wheat and corn scratch at Homestead, Dade County. (Creamer, Dec. 17).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Following fogging treatments with pyrethrins, adults taken at blacklight traps in Monroe County potato storage dropped in numbers from 174 per night on December 14 to 8 per night on December 23. Temperature held at 60° F. In another storage, where temperature maintained at 55° F., adults taken at rate of 45 per night during interval December 13-16. (Wells, Laser).

Stored-product Insects in Alabama - Recent inspection of corn stored in ordinary barn storage facilities in Lee County shows light infestations of Sitophilus granarius, S. oryzae and Sitotroga cerealella. Numerous Tenebrio molitor feeding on floors at entrances. (McQueen).

Stored-product Insects in Oklahoma - Sitophilus granarius, Tribolium confusum and Tenebroides mauritanicus were abundant in stored feed and grain in one location in Kiowa County. No suspect specimens of Trogoderma granarium collected. (Okla. Coop. Sur.).

DRIED-FRUIT MOTH (Vitula edmandsae serratilineella) - CALIFORNIA - Larvae medium in dried prunes at Berkeley, Alameda County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

A PARASITIC BRACONID (Aphidius testaceipes) - OKLAHOMA - Less than 1 percent of greenbug (Schizaphis graminum) population infested. (Okla. Coop. Sur.).

LADY BEETLES - ALABAMA - Hippodamia convergens continues feeding on pine aphids in State. Numerous specimens of Psyllobora virgintimaculata persistent on magnolia leaves in Lee County. Withstood temperature of 14° F. and active daily. Apparently feeding on mites or mite eggs. (McQueen).

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The Family Name of Aphids

The International Commission on Zoological Nomenclature has approved Aphididae as the correct spelling of the family name of aphids and has placed this name on the Official List of Family-Group Names. The Commission rejected Aphidae and several other spellings that have been applied to this group of insects. The action is recorded in Opinion 677, Bull. Zool. Nomen., vol. 20, pl. 5, pp. 336-337, 21 Oct. 1963. In accordance with the Commission ruling, I will now use Aphididae instead of Aphidae for the family name of aphids.

Louise M. Russell, Entomology Research Division, ARS, USDA, Washington, D.C.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (gray cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commiralis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege sticticalis (garden webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 12/17			BL					2													3			
Gainesville 12/26			BL	3				1													1			
GEORGIA																								
Tifton 12/12-18									0	1								0	0					
SOUTH CAROLINA																								
Charleston 12/9-15	30-60	1.79	BL	8			0	10	0	0	0					5	1	0	0	2		0		
Charleston 12/16-22	22-52	.21	BL	0			0	0	0	0	0					1	0	0	0	0		0		
Charleston 12/23-29	27-65	none	BL	0			0	0	0	0	0					0	0	0	0	0		0		

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

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VOL. 14 No. 2 January 10, 1964

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Volume 14 January 10, 1964 Number 2

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREEN PEACH APHID infestations beginning to increase in lettuce fields in Yuma and Maricopa Counties, Arizona. (p. 12).

PINK BOLLWORM infestations continue to be found in Pinal and Maricopa Counties, Arizona. Most recent discoveries near Winkelman, northeastern Pinal County. (p. 13).

Several moderate infestations of CHICKEN BODY LOUSE reported in Benton and Washington Counties, northwest Arkansas. (p. 13). In Alabama, both biting and sucking LICE found on cattle in central area of State; damaging numbers expected. (p. 14).

DETECTION

CARROT RUST FLY (*Psila rosae*) found for first time in California; recorded in Eureka, Humboldt County. (p. 12).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 14). No screw-worm cases reported during period December 29 to January 4. This is the second consecutive reporting period that pest has not been reported in the United States.

Summary of Insect Conditions in Some Countries of the Near East and Africa - 1963. Turkey (p. 16); Iran (p. 18); Afghanistan (p. 19); Republic of the Sudan (p. 21); Eritrea, Ethiopa (p. 25); Ethiopa (p. 27).

Reports in this issue are for week ending January 3, unless otherwise indicated.

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NOTE: The scientific names for almond moth, raisin moth and ermine moth have recently been changed. Almond moth is now *Cadra cautella* (Walker), raisin moth is *Cadra figulilella* (Gregson) and ermine moth is *Yponomeuta padella* (Linnaeus). See the footnote on page 15 for *Cadra* and the footnote on page 18 for *Yponomeuta*.

WEATHER OF THE WEEK ENDING JANUARY 6

Temperatures averaged above normal over most of the area northwest of a line from western Texas northeastward to northern Lower Michigan and below normal southeast of that line. Temperature departures ranged from +20° over northeastern Montana and northwestern North Dakota to -9° at Tallahassee, Florida. Over some eastern areas, it was the 4th consecutive week with below-normal temperatures. In Florida, it was the 5th colder-than-normal week.

Generous rains fell along the Washington and Oregon coast. Weekly totals decreased from about 4 inches on the coast to about 1 inch a short distance inland. Most other areas from the Pacific eastward to the Mississippi and Ohio Rivers received less than 1/4 inch. Precipitation exceeded 1 inch over the southern Appalachians and over an area extending from Mobile, Alabama, to Norfolk, Virginia. The eastern coast of southern Florida also received generous rains. Some stations in that area received from 3 to 6 inches on December 30 and 31.

The heaviest snowfall of the century fell over parts of the Gulf States at midweek. New Orleans, Louisiana, received 4 inches of snow and 10.5 inches fell at Bay St. Louis, Mississippi. Snow, sleet, and freezing rain caused extensive damage to power and communication lines and trees from Georgia to North Carolina.

At the beginning of the week, light rain fell and winds increased in the Far Northwest and a weak low in the eastern part of the Gulf of Mexico brought moderate to heavy showers to southern Florida. Unseasonal warmth prevailed in southern California in contrast to bitter cold from Minnesota to New England. The storm in the Southeast intensified producing generous rains along the Gulf of Mexico with heavy snow over parts of the Gulf States on Tuesday. By the beginning of the New Year, heavy snow clogged the highways of many southeastern States. East-central Mississippi and northern Alabama were especially hard hit. Snow accumulated to 14 inches at Meridian, Mississippi, and to 16 inches at Huntsville, Alabama.

Southwesterly winds brought a warming trend to the middle States at midweek. The temperature at Springfield, Missouri, climbed from 8° on Wednesday morning to 68° by Thursday afternoon. Strong winds whistled through this section on Friday as a dry cold front moved eastward. Freezing temperatures occurred as far south as Tampa, Florida, Friday morning. Light snow flurries occurred on Saturday over the northern Rocky Mountains and from the upper Ohio River Valley to New England.

At the end of the week, high pressure prevailed from the Great Basin to the central Great Plains. Another mound of high pressure was centered along the middle Atlantic coast. A low pressure area, centered near Green Bay, Wisconsin, produced snow flurries in Minnesota, Wisconsin, and Upper Michigan. It was cloudy along a cold front that extended southwestward to Ft. Worth, Texas, and beyond. Another storm, off the coast of Washington, was bringing rain to the lower coastal lands and snow flurries to the northern Rocky Mountains. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Moderate counts reported on alfalfa in Choctaw County (southeast). (Okla. Coop. Sur.). ARKANSAS - Temperatures as low as -13° F. apparently knocked out infestations in northwestern area. Dead aphids found on alfalfa but no live specimens. (Ark. Ins. Sur.). FLORIDA - Nymphs and adults light on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Populations remain light in Curry and Roosevelt Counties in wheat. (N. M. Coop. Rpt.). OKLAHOMA - Populations in east central and south central counties remain below economic levels, with all counts fewer than 5 per linear foot. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in northwestern area. (Ark. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Very light populations beginning to appear in Yuma and Maricopa Counties on alfalfa. Counts averaged 2-10 per 100 sweeps. (Ariz. Coop. Sur.). ARKANSAS - Surveys negative in northwestern area. (Ark. Ins. Sur.). FLORIDA - Nymphs and adults light on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light counts noted in Jefferson County wheat (south central). (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light counts of 6 per linear foot noted in Jefferson County (south central); none observed in east central counties. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - One field of alfalfa infested in Yuma County. Counts averaged 10 per 100 sweeps. (Ariz. Coop. Sur.).

APHIDS - UTAH - Wild geranium in Logan Canyon, Cache County, conspicuously infested with Macrosiphum crenicornum and Macrosiphum aetheocornum during June and July. (Knowlton, Eastop).

A PLANT BUG (Taylorilygus pallidulus) - FLORIDA - Two adults collected in 300 sweeps on foot-high Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults averaged 3 per 100 sweeps in alfalfa fields of Yuma County; ranged 7-8 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Adults averaged 4 per 100 sweeps in Yuma County alfalfa fields and 8-10 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Four adults collected in 300 sweeps on foot-high Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Sweepings in alfalfa fields averaged 2 larvae per 100 sweeps in Yuma County and 8 per 100 sweeps in Maricopa County. Increases were noted in adult flights. (Ariz. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - FLORIDA - Two adults collected in 300 sweeps in foot-high Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Adults averaged 1-2 per 100 sweeps in alfalfa fields on the Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

FRUIT INSECTS

CITRUS MEALYBUG (Pseudococcus citri) - CALIFORNIA - Heavy locally on orange trees in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Moderate to severe and damaging Meyer lemon at Gainesville, Alachua County. (Mead, Dec. 24).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Numerous groves found containing feeding damage in Yuma County. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Larvae continue to be found in citrus groves and nurseries in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

SPIREA APHID (Aphis spiraecola) - FLORIDA - Lightly damaging satsuma at De Leon Springs, Volusia County. (Roberts).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Recent survey of poorly kept pecan orchard in Lee County shows average larval infestation of 8.3 percent of nuts. Orchard 30 to 35 years old. Individual trees varied 4-18 percent infested, with 140-245 larvae per tree, or a high of nearly 4,000 emerged larvae per acre. No effort to maintain production for past 10-15 years. (Buttram et al.).

PECAN WEEVIL (Curculio caryae) - NORTH CAROLINA - Damaged 90 percent of Stuart pecans from several trees at location in Columbus County; 2-40 nuts examined still contained full-grown larvae. (Raper, Mount).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Medium on almond nursery stock in Brentwood, Contra Costa County. (Cal. Coop. Rpt.).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Larvae light locally on peach leaves in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Light on plum on Mariana root stock nursery trees in Brentwood, Contra Costa County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CARROT RUST FLY (Psila rosae) - CALIFORNIA - Maggots infested carrots in local vegetable garden at Eureka, Humboldt County, December 21. Det. by M. S. Wasbauer. This is a new State record. (Cal. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Scattered infestations found in sugar beet and lettuce fields of Maricopa County. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light infestations exist in sugar beet fields of Maricopa County; averaged 4 larvae per 100 sweeps. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Infestations beginning to increase in lettuce fields of Yuma and Maricopa Counties; populations in sugar beets in Mesa area, Maricopa County, average 15-20 per 100 sweeps. Twelve sticky board traps averaged 0.17 per trap in Yuma County. (Ariz. Coop. Sur.). FLORIDA - Severely damaged collard greens at Key West, Monroe County. (Buchanan, Dec. 24).

MELON APHID (Aphis gossypii) - ARIZONA - Averaged 1.3 per trap on 12 sticky boards in Yuma County. (Ariz. Coop. Sur.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infestations continue to be found in Pinal and Maricopa Counties. Most recent discoveries near Winkelman, northeastern Pinal County. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy locally on privet in Sacramento, Sacramento County. Light on scarlet wisteria tree stock in Oroville, Butte County. (Cal. Coop. Rpt.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Medium on New Zealand flax (Phormium tenax) nursery stock in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Light to medium on lantana plants in Manteca, San Joaquin County, and Tulare, Tulare County; light in El Centro, Imperial County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Adults heavy on deodar cedar leaves in ornamental plantings in Lodi, San Joaquin County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Pterocomma bicolor light on pussy willow trees in San Jose, Santa Clara County. Adults and nymphs present. (Cal. Coop. Rpt.). OKLAHOMA - First seasonal activity of Cinara tujafilina noted December 17 on arborvitae in Marshall County. (Okla. Coop. Sur.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - Taken on Codiaeum sp. at Apopka, Orange County. (Musgrove, Nov. 15). CALIFORNIA - Adults light on lantana in Arlington, Riverside County. (Cal. Coop. Rpt.).

SPIDER MITES - NEW MEXICO - Problem in variety store displays of house plants in many areas of State. Control difficulty noted. (N. M. Coop. Rpt.).

A FALSE SPIDER MITE (Brevipalpus sp.) - FLORIDA - Moderately to severely damaging hurricane palm at Largo, Pinellas County. (Bingaman, Oct. 25).

INSECTS AFFECTING MAN AND ANIMALS

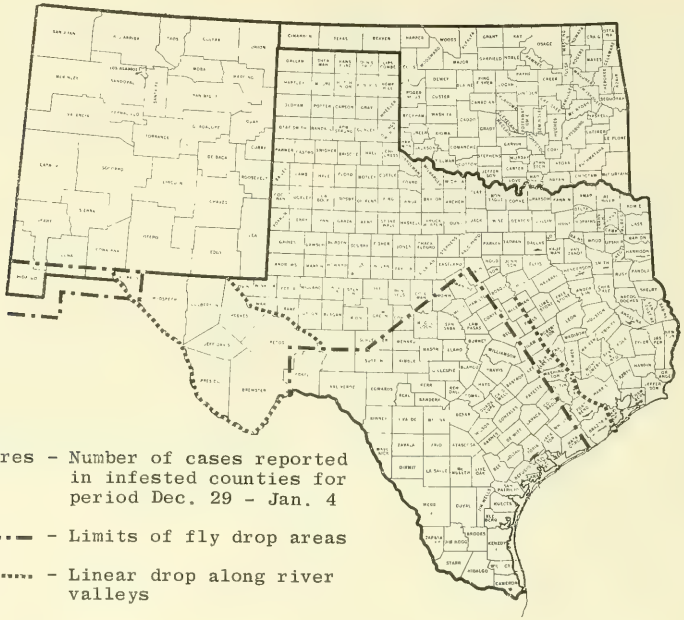
CATTLE GRUBS (Hypoderma spp.) - NEW MEXICO - Ranchers in Sierra, Grant, Dona Ana, De Baca and Harding Counties report light to fairly heavy numbers of H. lineatum larvae appearing in backs of range cattle. (N. M. Coop. Rpt.). OKLAHOMA - H. lineatum moderate on cattle checked in Love County. (Okla. Coop. Sur.). ARKANSAS - Herd of 22 treated cattle checked for H. lineatum in Franklin County (west central). All free of grubs. Herd checked in Crawford County (west central). Of 19 treated animals, one had grub; 3 untreated animals with total of 9 grubs with range of 1-4. (Ark. Ins. Sur., Dec. 18). ALABAMA - Inspection of 27 brood cows (beef) in Macon County showed Hypoderma spp. grubs in counts of 1-9 per animal in 10 animals of herd. No holes cut through outer skin as of last week of December. (Ledbetter).

MOSQUITOES - ALABAMA - Extremely high population of Culex spp. larvae reported in home water supply (dug well) in Lee County. Water level about 14 feet below ground where ground surface temperatures down to 14° F. (Ledbetter, Johnston).

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Several moderate infestations reported in Benton and Washington Counties, northwest. (Ark. Ins. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

The period December 29 - January 4 was the second consecutive reporting period this year that no screw-worms were reported in the United States. The last specimens were collected from Hidalgo County, TEXAS, on December 18, 1963. Sterile fly release totaled slightly over 130 million this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period Dec. 29 - Jan. 4

- · - · - Limits of fly drop areas

..... - Linear drop along river valleys

CATTLE LICE - UTAH - Numerous on some Kane County herds. (Knowlton). OKLAHOMA - Light populations active on cattle in Pushmataha (southeast) and Love (south central) Counties. (Okla. Coop. Sur.). ARKANSAS - Cattle checked in Franklin and Crawford Counties negative. (Boyer, Barnes, Simco; Dec. 18). ALABAMA - Both biting and sucking lice showing up and feeding on cattle in central part of State. Damaging numbers expected as winter continues. (Ledbetter).

BED BUG (Cimex lectularius) - MICHIGAN - Single specimen found in Lansing home. Specimens submitted for identification became relatively rare during recent years. (Cardinell, Hoffman).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Light on Pushmataha County cattle. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Infested wild bird seed in homes in two localities in Prince Georges County. (U. Md., Ent. Dept.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Infested flour in home at Logan, Cache County, for more than a year. (Knowlton).

CARPET BEETLE (Anthrenus scrophulariae) - TEXAS - Heavy, localized populations reported damaging in homes in Orange County. (McKenzie).

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - WASHINGTON - Large numbers under rug in home at Prosser, Benton County; causing no damage. Probably migrated indoors with cold weather. Det. by M. H. Hatch. (Cone, Gerlitz).

A POWDER-POST BEETLE (Trogoxylon prostomoides) - CALIFORNIA - Heavy in carved wood ornaments in home in Salinas, Monterey County. (Cal. Coop. Rpt.).

A WEEVIL (Ophryastes sp.) - TEXAS - Light, local infestations annoying to home-owners in Potter County. Larvae feed on roots of various plants; now probably seeking overwintering sites. (Burke).

CLUSTER FLY (Pollenia rudis) - UTAH - Large numbers found in home at Logan, Cache County. (Knowlton).

BROWN-BANDED COCKROACH (Supella supellectilium) - UTAH - Infesting apartments at Logan, Cache County. (Knowlton).

CAMEL CRICKETS - NORTH CAROLINA - Numerous under house in Wake County. (Bruce). UTAH - In basement of home at Salt Lake City, Salt Lake County. (Knowlton).

PHARAOH ANT (Monomorium pharaonis) - MARYLAND - Infested several rooms of building at College Park, Prince Georges County. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults collected at rate of 11 per night by blacklight trap in Monroe County storage. Storage fogged previous week with pyrethrins; temperatures maintained at 60° F. All tubers removed from other storage in county. (Laser, Wells).

RAISIN MOTH (Cadra figulilella)* - CALIFORNIA - Medium in mummified peaches in stored picking boxes in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

DARKLING BEETLES (Tribolium spp.) - ARKANSAS - Specimens collected from cotton seed in storage in Mississippi County. Apparently caused cotton seed to heat. (Ark. Ins. Sur.).

BENEFICIAL INSECTS

A DAMSEL BUG (Nabis sp.) - FLORIDA - Six specimens taken in 300 sweeps in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Light in soil at Mulberry, Polk County; this is additional location in county. Det. by W. Breidenbach. (Poole, Richards).

* Whalley, P. E. S. 1960. Ent. Gaz. 11(4):183-184.

SUMMARY OF INSECT CONDITIONS IN SOME COUNTRIES OF THE NEAR EAST AND AFRICA

1963

The six summaries of insect conditions that follow have been submitted in the 1963 Annual Report of the Regional Insect Control Project, with headquarters in Beirut, Lebanon. The first attempt to present information on the more important insect pests of the Near East in the Cooperative Economic Insect Report was made in 1955 following a request from the survey committee of the Entomological Society of America. For the benefit of CEIR readers, it may be well to point out that the Regional Insect Control Project is a cooperative program operated by the Plant Pest Control Division, Agricultural Research Service, in accordance with an agreement signed on February 18, 1954, between the U. S. Department of Agriculture and the International Cooperation Administration (now Agency for International Development). At the present time, a staff of nine entomologists is stationed in seven countries working with the personnel of the U. S. Operations Missions and Ministries of Agriculture.

The work of these entomologists is designed to fulfill commitments to the host countries, with respect to the evaluation of locust problems, the demonstration of control practices, development of insect surveys and the training of nationals in methods, procedures and the organization of applied entomology and plant quarantine work. During the last few years the Ministries of Agriculture have strengthened their Plant Protection organizations. An increased effort has been made to collect, identify and record pest species of economic importance. First-hand information on foreign pests should serve to familiarize the entomologist and the pesticide industry of the United States with the major pests in the areas reported on. It should lead to better understanding and mutual interest in the entomological problems common to the United States and other nations. (Edson J. Hambleton, Assistant to the Director (Foreign Technical Programs), Plant Pest Control Division, ARS, USDA, Hyattsville, Maryland 20781).

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Summary of Insect Conditions in Turkey

Prepared by Flournoy M. Philips

Cereal and Forage Insects: A CUTWORM (Agrotis sp.) was found damaging field crops in general throughout Turkey, particularly sugar beets; over 50,000 acres were treated. A PENTATOMID (Aelia sp.) caused damage in central and northeastern Anatolia; 48,000 acres of cereal crops were treated. Damage from the SENN PEST (Eurygaster integriceps) was very light, only 1,400 acres of wheat were treated throughout the country. A SCARAB (Anisoplia sp.) was moderately damaging to wheat in the Aegean area, with 19,000 acres being treated, and CEREAL LEAF MINER (Syringopais temperatella) caused moderate damage to wheat in the southeastern part of Anatolia. A GROUND BEETLE (Zabrus sp.) damaged wheat in the central plateau so that some fields were almost completely destroyed. Sixteen thousand acres were treated. ALFALFA WEEVIL (Hypera postica) caused heavy damage to alfalfa throughout central and western Turkey. DESERT LOCUST (Schistocerca gregaria) did not appear in Turkey, and ITALIAN LOCUST (Calliptamus italicus), MOROCCAN LOCUST (Dociostaurus maroccanus) and MIGRATORY LOCUST (Locusta migratoria) caused practically no damage during 1963. BARLEY APHID (Cuernavaca noxius), which caused heavy damage to grain crops in 1962,

was of no importance in 1963. CEREAL LEAF BEETLE (Oulema melanopa) caused moderate damage to wheat in the Samsun area.

Fruit Insects: An ERMINE MOTH (Yponomeuta sp.) [1/] was very damaging throughout Turkey, with over 6,000,000 trees being treated. CODLING MOTH (Carpocapsa pomonella) infested 100 percent of the apples in areas where insecticides were not applied. In areas where treatments were applied on a schedule, the infestation rate ranged from 0 to 15 percent, with an average rate of 2 percent. Over 1,000,000 trees were treated in 1963. A SPIDER MITE (Tetranychus sp.) caused moderately heavy damage to apples in the Black Sea area, and a FRUIT-TREE SPIDER MITE (Tetranychus viennensis) caused heavy damage to apples in an area north of Kastamonu Province. CHERRY FRUIT FLY (Rhagoletis cerasi) infested sweet cherry in the mountainous areas bordering central Anatolia. ORIENTAL FRUIT MOTH (Grapholitha molesta) was controlled adequately in the region of the Sea of Marmara when over 700,000 peach and apricot trees were treated. SAN JOSE SCALE (Aspidiotus perniciosus) was found in the Samsun area and, in tracing the source, it has been found in Bursa and Istanbul in nurseries. A SAWFLY (Hoplocampa sp.) caused light damage in the Sakarya-Amasya area. A LEAF ROLLER (Archips sp.) caused moderate damage in eastern and northern parts of Anatolia. Heavy infestations of CITRUS RUST MITE (Phyllocoptruta oleivora) were found in all of the citrus-growing areas of Turkey, but MEDITERRANEAN FRUIT FLY (Ceratitis capitata) caused practically no damage to citrus. Over 12,000,000 olive trees were treated this year to control the OLIVE MOTH (Prays oleellus) in areas by the Aegean Sea and Sea of Marmara. A CURCULIONID (Curculio sp.) caused heavy damage to hazel nuts in areas near the Black Sea and Sea of Marmara, with over 100,000 acres being treated.

Truck Crop Insects: The TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) caused heavy, isolated damage to melons in the Diyarbakir area. The COLORADO POTATO BEETLE (Leptinotarsa decemlineata) was found for the first time in Turkey in 23 locations adjacent to the border of Greece-Bulgaria. Three hundred acres of eggplant and potatoes were treated. A BUPRESTID (Coraebus sinuatus) caused moderate damage to strawberries on the Mediterranean coast. A CABBAGE BUTTERFLY (Pieris sp.) cuused heavy damage to cabbage in the Aegean Sea coastal area.

Cotton Insects: PINK BOLLWORM (Pectinophora gossypiella) was found to be infesting from 5 to 80 percent of the green bolls examined in the area by the Aegean Sea. Prior to 1963, this insect has never been much of a problem in this area. SPINY BOLLWORM (Earias insulana) caused losses estimated at 1 to 3 percent in the Adana Plains area. A SPIDER MITE (Tetranychus sp.) caused heavy damage to cotton in the Adana Plains.

Stored-product Insects: KHAPRA BEETLE (Trogoderma granarium) was found infesting many grain storage structures throughout the southern half of Turkey.

1/ Friese, G. 1960. Beiträge zur Entomologie 10(1/2):2.

Summary of Insect Conditions in Iran

Prepared by G. Farahbakhsh [1/]

Cereal and Forage Insects: No invasions of the DESERT LOCUST (Schistocerca gregaria) have occurred since November 1962. MOROCCAN LOCUST (Dociostaurus maroccanus) occurred in light infestations in Azerbaijan, Khurasan, Gurgan and Fars Provinces, which necessitated control on 83,650 acres. SENN PEST (Eurygaster integriceps) infestations were severe in Isfahan, Ghazvin and also in the Tehran area. Chemical control was applied to 125,000 acres, and 500 acres were treated with biological control methods on an experimental basis. DURRA STALK BORER (Sesamia cretica) caused damage to corn in Veramin and the Caspian Sea area, to sorghum in Baluchistan, and to sugarcane in Khuzistan. EUROPEAN CORN BORER (Ostrinia nubilalis) caused heavy damage to corn and sorghum in the Caspian Sea area, and CEREAL LEAF MINER (Syringopais temperatella) was light on wheat and barley in the southern and southeastern provinces. ALFALFA WEEVIL (Hypera postica) was the most serious pest of alfalfa in the country. The heaviest damage occurred in Karaj, and the first cutting of alfalfa suffered the most damage. SPOTTED ALFALFA APHID (Therioaphis maculata) occurred in most of the alfalfa-producing area but, because of the presence of an active parasite, it was not a serious problem. An ARMYWORM (Pseudaletia sp.) was a minor pest of rice in the area adjacent to the Caspian Sea.

Vegetable Insects: BEET ARMYWORM (Spodoptera exigua) infestations occurred in the sugar-beet areas of Fars, Kermanshah, Isfahan and Rezaiyeh in numbers necessitating extensive control practices. A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) was severe in most sugar-beet areas. Larvae of CABBAGE BUTTERFLIES (Pieris brassicae and P. rapae) damaged cabbage leaves in all cabbage-producing areas. A hymenopterous parasite was observed in the Tehran area. BALUCHISTAN MELON FLY (Myiopardalis pardalina) caused economic damage to melons and cucumbers in all producing areas. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) damaged cucumbers and melons in all producing areas.

Cotton Insects: OLD WORLD BOLLWORM (Heliothis armigera) was the most important pest of cotton in Mazanderan and Gurgan Provinces. Extensive aerial control was done to prevent insect damage. SPINY BOLLWORM (Earias insulana) was still a serious problem in cotton-producing areas of Khuzistan Province and the central part of the country. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred in most cotton-producing areas.

Deciduous Fruit Insects: CODLING MOTH (Carpocapsa pomonella) occurred in all fruit-producing areas. Apples were severely damaged, but pears and quince sustained only light damage by this insect. ERMINE MOTH (Yponomeuta padella) [2/] caused severe damage in Azerbaijan and Khurasan Provinces where many apple and plum trees were defoliated. A CERAMBYCID TWIG BORER (Osphranteria coerulescens) caused severe damage in the central and western parts of the country and also in the Tehran area. Apple, pear, apricot, quince, peach and cherry trees were attacked resulting in the killing of the terminal branches of the trees. OYSTERSHELL SCALE (Lepidosaphes ulmi) and another SCALE INSECT (L. malicola) were severe on apple trees in the Tehran area. Heavy infestations of PEAR LACE BUG (Stephanitis pyri) and a SPIDER MITE (Bryobia rubrioculus) occurred on apple trees in the Tehran area. SHOT-HOLE BORER (Scolytus rugulosus) and LEOPARD MOTH (Zeuzera pyrina) were the major pests of fruit trees in Azerbaijan and Khurasan Provinces, in the central part of the country, and in the Tehran area.

[1/] Entomologist--Iran Department of Plant Protection.

[2/] Friese, G. 1960. Beiträge zur Entomologie 10(1/2):2.

Citrus Insects: PURPLE SCALE (Lepidosaphes beckii), DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), CHAFF SCALE (Parlatoria pergandii), BLACK PARLATORIA SCALE (Parlatoria zizyphus), YELLOW SCALE (Aonidiella citrina), and CITRUS PULVINARIA (Pulvinaria aurantii) were the most serious pests on citrus fruits in the area near the Caspian Sea. CITRUS RUST MITE (Phyllocoptruta oleivora) and CITRUS RED MITE (Panonychus citri) occurred in the area adjacent to the Caspian Sea causing light to heavy damage to citrus crops.

Olive Insects: BLACK SCALE (Saissetia oleae) populations were low in the Rudbar area as a result of regular spray programs for several years. Chemical control was applied on 500,000 trees twice in March and April and twice in September and October. OLIVE PSYLLID (Euphyllura olivina) infestations were light and estimated loss of young fruit was only 0-10 percent.

Summary of Insect Conditions in Afghanistan

Prepared by E. R. Millet

Cereal and Forage Insects: There was no breeding or invasions of DESERT LOCUST (Schistocerca gregaria) in Afghanistan in 1963. A 600-acre infestation of local GRASSHOPPERS, probably of the genus Dociostaurus, was reported controlled at Charikar, 40 miles north of Kabul, in the late spring and early summer. Several infestations of this genus were also reported from the Herat area. Small GRASSHOPPERS gave some trouble near Maiwand, south of Kabul, this summer. ITALIAN LOCUST (Calliptamus italicus) and MOROCCAN LOCUST (Dociostaurus maroccanus) were reported to have been controlled on an estimated 9,000 acres in the northern provinces this spring.

WEEVILS (Hypera sp. and Sitona sp.) were extremely light in alfalfa and native clover in Afghanistan during the year. Numerous sweepings during the summer months revealed some Sitona, but practically no Hypera were observed. Specimens of an undetermined small green WEEVIL (Myllocerus n. sp.) were not collected this year, but a few specimens of another WEEVIL (Sympiezomias sp.) were collected, as well as two specimens of the subfamily Eremninae. SPOTTED ALFALFA APHID (Therioaphis maculata) and SWEETCLOVER APHID (T. riehmi) were light in alfalfa during the summer and did not begin to show up in any appreciable numbers until September. LADY BEETLES (Coccinella septempunctata and C. undecimpunctata) were noted in abundance in alfalfa fields during the summer. A CUTWORM (Agrotis sp.) was damaging to young corn around Baghrami and also in Patkia Province. A RICE STEM BORER, probably the PADDY BORER (Tryporyza incertulas), was found light in rice around Matun. This is apparently the first evidence of this pest in Afghanistan.

Fruit Insects: A LEAFWORM (Yponomeutidae) was light on figs at Coriz-i-Mir, but was observed as numerous around Matun in Paktia Province. A SCALE INSECT was found extremely heavy on young twigs and limbs of almonds in the Kabul area. A LACE BUG, probably Stephanitis pyri, was extremely heavy, 5 to 10 adults per leaf, on apple in the formal garden at Baghlan. The lace bug was also observed at the new Ministry farm at Kunduz, and was especially heavy on apple at the old Ministry farm at Kunduz. An APHID (Pterochlorus persicae) which has been heavy on peach every year at Coriz-i-Mir, was found heavy on the limbs of cherry at Baghlan in 1963. Limbs were sometimes covered for 6 inches or more. A FRUIT-TREE SPIDER MITE (Bryobia rubrioculus) was light to moderate on apple in the Kabul and Ghazni areas, but heavy on some apple trees near Paghman. CODLING MOTH (Carpocapsa pomonella) was again widespread on apples in Afghanistan and caused 25 to 50 percent damage in most orchards. The ERMINE MOTH (Yponomeuta padella) was also destructive to apple, apricot and almonds, particularly around Ghazni. APHIDS, mostly APPLE APHID (Aphis pomi), were heavy as usual on all of the apple

trees in Afghanistan this year. Infestations of another APHID (Anuraphis mali) were lighter.

Vegetable Insects: MAIZE BORER (Chilo zonellus) infested an estimated 20 percent of the sweet corn plantings at the Ministry farm of Shishambagh in Jalalabad. A CUTWORM (Agrotis sp.) was again extremely damaging to sugar beets in Kataghan Province. Some fields showed as much as a 25-percent loss in stand. MELON FLY (Dacus cucurbitae) was reported heavy, with infestations up to 100 percent in some melon and cucumber fields around Jalalabad. It was light on the Shishambagh farm where spraying was conducted and plantings were early. BALUCHISTAN MELON FLY (Myiopardalis pardalina) infestations were reported to average only about 5 percent on sweet melons in the Helmand Valley. There was a much reduced planting in the Valley during 1963 because of the high annual loss from this pest. Watermelon fields at Marja and Bolen showed 25 percent infestation by Baluchistan melon fly in September. No watermelons examined were found to have any infestation of the small, black WEEVIL (Baris granulipennis). The RED PUMPKIN BEETLE (Raphidopalpa foveicollis) was heavy on young cucumber plantings at Bolen in the Helmand Valley; as many as 2 to 4 adults per young 3-inch plant were observed. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) was extremely heavy and damaging to several melon fields near Baghlan. Adults ranged 6 to 12 per plant and many small immature melons were damaged. CABBAGE APHID (Brevicoryne brassicae) was heavy on cabbage in gardens at Kabul and in the Helmand Valley.

Citrus Insects: CITRUS WHITEFLY (Dialeurodes citri) was light on citrus in the Matun area, but was heavy around Jalalabad. CITRUS PSYLLA (Diaphorina citri) was again heavy and damaging in the Jalalabad area, but none were observed in Matun. CITRUS LEAF MINER (Phyllocnistis citrella) was moderate in the tender growth of young citrus trees at both Matun and Jalalabad. YELLOW SCALE (Aonidiella citrina) was again heavy in groves at Jalalabad and Laghman, but none were observed in the Matun area. A SPIDER MITE (Eutetranychus orientalis) was moderate on citrus at Jalalabad, but this pest was not noted in the Matun area.

Cotton Insects: CUTWORMS (Agrotis spp.) and WIREWORMS were reported to have very heavily damaged young cotton in Kataghan Province. COTTON APHID (Aphis gossypii) was heavy in numerous cotton fields around Baghlan in Kataghan Province during September. SPIDER MITES (Tetranychus spp.) were light in the Helmand Valley as was the SWEETPOTATO WHITEFLY (Bemisia tabaci) this year. The SPINY BOLLWORM (Earias insulana) infestation was reported to have averaged only 3 to 5 percent at Marja and Shemalon, but the pest was reported to be extremely heavy and damaging around Jalalabad. PINK BOLLWORM (Pectinophora gossypiella) was reported light in the Jalalabad area due to the very cold winter early in the year. Apparently neither of these two bollworms occurs in Kataghan Province in the north.

Forest and Shade Tree Insects: An extremely heavy infestation of a black APHID (probably Aphis craccivora) occurred in the tip growth of young trees, Acacia, in the Ministry forestry nursery at Paghman. There was a heavy emergence of CICADAS in the Kabul area during the month of June. Some damage to limbs and twigs from egg laying was apparent. Four distinct species, Psalmochavias rugipennis, Paharia lacteipennis, Paharia casyapae and Cicadatra anoea, were identified by description. This brood of mixed species had not been reported in abundance in the Kabul area since 1954. TRUNK BORERS (Aeolesthes sarta, Capnodis cariosa and Melanophila picta) were still destructive to elm and poplar trees along streets in Kabul and the surrounding country. A LEPIDOPTEROUS LEAFWORM was extremely damaging on the leaves of all elms around Baghlan this summer, and a LEAF BEETLE was equally damaging to the leaves of mulberry. Neither of the latter specimens was identified.

Stored-product Insects: KHAPRA BEETLE (Trogoderma granarium) was the most common and plentiful pest found in wheat storage warehouses in Afghanistan this year. RICE WEEVIL (Sitophilus oryzae) and RED FLOUR BEETLE (Tribolium castaneum) were the most common pests found in PL-480 wheat arriving in Afghanistan from the United States.

Man, Animal and Household Insects: FOWL TICK (Argas persicus) was quite a problem at the Ministry chicken farm at Beni Hissar this summer. A COCKROACH (Shelfordella qussakovskii) was again numerous in garages and storerooms in Kabul this year. This species migrates into houses but does not seem to breed or build up a population in dwellings. This species was described in part from Kabul in 1950. HOUSE FLY (Musca domestica) appeared to have a somewhat higher population in Kabul this year over 1962. A LOUSE FLY (Hippobosca longipennis) was again noted as numerous on dogs. This pest seems to prefer getting under the hair on the neck area of the animal.

Summary of Insect Conditions in the Republic of the Sudan

Prepared by Arthur Kaatz

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) was limited to small numbers of the solitary phase which occurred in several locations throughout the summer breeding range. On the Red Sea coast, a minor infestation was found in millet cultivations in the Arbaat Delta, north of Port Sudan, and another small, scattered infestation in several small areas south of Port Sudan. TREE LOCUST (Anacridium moestum melanorhodon) infestations increased during the first six months and then tapered off in the dry season. Very light, scattered rains affected their breeding during July and August. Only small patches of easily controlled "hopper" stage locusts were found in late August and September. Early season controls were carried out successfully in the Blue Nile, Kordofan, Darfur, Khartoum and Northern Provinces. Infestations in Khartoum and Northern Provinces were found only along the Nile River system. A TROPICAL MIGRATORY LOCUST (Locusta migratoria migratorioides) apparently was not present this year as no reports of its presence were received.

DURRA STALK BORER (Sesamia cretica) was widespread in sorghum (durra) plantings throughout central Sudan and in Equatoria Province causing damage in many local areas. Sugarcane along the Blue Nile and the Atbara River was also infested. Controls attempted in sugarcane fields were not successful. A STALK BORER (Chilo sp.) was reported infesting corn (maize), sorghum and sugarcane in Northern Province from Shendi to Atbara. SOUTHERN GREEN STINK BUG (Nezara viridula) infestations were light on sorghum and millet in the Tokar Delta during January, February and March. SORGHUM MIDGE (Contarinia sorghicola) caused heavy losses in sorghum in the Gezira area during January. BEET ARMYWORM (Spodoptera exigua) infested broadbeans, berseem, safflower, peanuts and sorghum at Khashm el Ghirba demonstration farms and in most cultivations along the Nile River north of Khartoum. Spraying was required on numerous cultivations. A NOCTUID (Heliothis armigera) infested many broadbean plots at Khashm el Ghirba and near Shendi, and some controls were carried out in both areas; it was also present in lubia (pulse) near cotton fields. SPOTTED ALFALFA APHID (Therioaphis maculata) and COWPEA APHID (Aphis craccivora) were present in berseem fields along the Nile River system, and several berseem fields were sprayed near Soba. APHIDS were also found in wheat and barley plots at Khashm el Ghirba and in peanut fields in the Dongola-Merowe District. DURRA ANDAT BUG (Agonoscelis pubescens) was present in Kassala and Blue Nile Provinces. Several sorghum and sesame fields were sprayed in both areas. Normally, controls are carried out during the dormant season by spraying the resting sites which are the shady portions of trees. GRASSHOPPERS were very numerous the first half of the year at the edges of forage crops. Fields in Kassala, Blue Nile and Kordofan Provinces were sprayed.

Attacks died out during the dry period in July and August. CRICKETS were present in berseem in the Northern Province near Shendi and Merowe as well as in the extreme north near Wadi Halfa where most of the small fields were sprayed and infestations checked. DURRA APHID (Aphis sorghi) was reported to be present on durra (sorghum) in Kassala District. No controls were carried out. THRIPS attacked peanuts and lubia (pulse) plots in Kassala District. Some plots were damaged from 15 to 18 percent. Sprays for control were estimated to be 85 percent successful. EGYPTIAN COTTONWORM (Prodenia litura) was reported in sorghum fields in the Nuba Mountain area during May and on okra in Kassala District. SNAILS were reported on maize, tomato and banana in Equatoria Province. An unidentified STEM BORER was reported present in barley and wheat plots at Khashm el Ghirba during February. A PYRALID (Antigastra catalaunalis) was found damaging terminal buds and flowers of sesame in Kordofan Province during September.

Fruit Insects: Infestations of a CITRUS LEAF MINER (Phyllocnistis citrella) have increased the last two years and this insect has become a major pest of citrus in most of the citrus-growing areas of The Sudan. An estimated 60 to 70 percent of the orchards are infested. Results of control activities have varied and have been effective only where conducted at the first sign of infestation. Attacks of a FRUIT FLY (Pardalaspis quinaria) were reported in several guava orchards along the Nile north of Khartoum. COCCIDS (Lepidosaphes tapleyi and Parlatoria pseudaspidiotus) were present in most mango orchards up and down the Nile River system. Approximately 65 percent of the trees are reported to be infested. Spray programs were carried out in Northern, Khartoum, Kassala and Blue Nile Provinces from February through mid-June. PARLATORIA DATE SCALE (Parlatoria blanchardi) and a TERMITE (Odontotermes sudanensis) are serious in date growing regions of the Northern Province. About 85 percent of the trees were reported to be infested. COTTONY-CUSHION SCALE (Icerya purchasi) attacks on immature mango trees in Blue Nile Province caused a reported 30 percent "die out" of young seedling trees. HIBISCUS MEALYBUG ("Phenacoccus" hirsutus)-SCALE INSECT complex has been persistent on citrus, guava, and ornamental shrubs in Northern, Khartoum, Kassala, Blue Nile and Darfur Provinces. Spraying activities have generally been unsuccessful. BANKS GRASS MITE (Oligonychus pratensis) was reported on date palms in the Northern Province and spraying activities were carried out simultaneously with scale insect control. A CITRUS SPIDER MITE (Eutetranychus orientalis)1/ was reported on citrus in Darfur, Khartoum, Kassala, Blue Nile and Northern Provinces. Infestations of a PAPILIONID (Papilio demoleus demodocus) on lemon trees in Equatoria, Blue Nile and Khartoum Provinces required control measures in several districts in each Province. Controls were generally successful. FLORIDA RED SCALE (Chrysomphalus aonidum) was observed on citrus near Juba, Yei, Meridi and Nzara, and infestations were heavy on fruits of grapefruit near Nzara. No controls were conducted. A FRUIT FLY (Dacus sp.) was present in guava fruit in Khartoum Province and on citrus in Northern Province. BLACK APHIDS were observed on citrus in Equatoria and Kassala Provinces.

Vegetable Insects: TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) and RED PUMPKIN BEETLE (Raphidopalpa foveicollis) are the two most important vegetable crop insects in The Sudan. Although spraying operations were carried out in many regions, 75 percent of the cucurbit crops in Northern and Khartoum Provinces were destroyed. ONION THRIPS (Thrips tabaci) was serious in Khartoum, Northern and Kassala Provinces, and onion yields were drastically reduced in these regions. BLISTER BEETLES, Mylabris sp., Epicauta sp. and Coryna sp., were widely

1/ This species formerly identified as Eutetranychus banksi; however, all previous records of banksi in North Africa and the Near East should be E. orientalis. See Baker, E. W. and Pritchard, A. E. 1960. Hilgardia 29(11):464.

distributed and severe on okra, eggplant, radishes, beans, spinach and tomatoes. Most severe attacks occurred during July, August and September. Controls have been successful where carried out. DIAMONDBACK MOTH (Plutella maculipennis) was reported in all spinach, cabbage and radish plantings. A FRUITWORM (Heliothis armigera) attacked tomato fruit at Khashm el Ghirba and many gardens along the Blue Nile and the Nile north of Khartoum. Eggplant, okra and bean fields were reported infested in Shendi District. CABBAGE LOOPER (Trichoplusia ni) was reported causing heavy damage to carrots, turnips and cabbage during February and March at Wadi Halfa. An APHID (Aphis sp., prob. craccivora) was reported on beans, tomato, and other vegetables near Wadi Halfa during January and February, but little damage occurred. The aphid was also present in the Dongola-Merowe reach of the Nile. SPINY BOLLWORM (Earias insulana) infested okra and eggplant at Khashm el Ghirba during May, and was present in Northern Province during January and February and again in May and June, with infestations from 5 to 15 percent at Shendi. HIBISCUS MEALYBUG ("Phenacoccus" hirsutus) was present in okra during January through June in the Dongola-Merowe District, and many plots were pulled to destroy infestations. A TINGID (Urentius echinus) was widespread in practically all old stands of eggplants. A HORNWORM and a SWEETPOTATO WEEVIL (Cylas formicarius) were present on sweetpotato in Equatoria Province. A FRUIT FLY (Dacus sp.) was present wherever cucumbers and melons are grown, being serious in Wau and El Obeid Districts; destroyed 60 percent of cucumbers in the Northern Province. Other insects on vegetables included LEAFHOPPERS, WHITEFLIES, FLEA BEETLES, TERMITES, ARMYWORMS, GRASSHOPPERS, THRIPS and APHIDS in varying degrees throughout the different districts.

Cotton Insects: COTTON JASSID (Empoasca lybica) was the most important cotton insect in all cotton-growing regions. During January-March, it reduced yields almost 15 percent in the Tokar Delta. Peak infestations were in mid-March. Cotton jassid had been a minor problem in the Gash Delta. Throughout the Gezira, Blue and White Nile regions, infestations started building up in late August and increased rapidly by mid-September. Aerial and ground spraying started in late September on an estimated 700,000 acres resulting in a reduction of population but not control. The second aerial spraying started during mid-October. The 1963 cotton crop was severely damaged. Populations varied within districts. SWEETPOTATO WHITEFLY (Bemisia tabaci) was as widespread as cotton jassid. It is second in importance and simultaneous controls are the usual practice. Infestations of sweetpotato whitefly were slight in the Gash and Tokar Deltas, except for being severe at Tokar townsite. Infestations in early cotton at Zeidab scheme north of Shendi were sprayed three times during June. In the Gezira, Blue and White Nile regions, infestations of sweetpotato whitefly alternated in density with cotton jassid during September, building up rapidly which resulted in a population explosion by mid-October. Counts of 2,000 to 10,000 per 100 leaves were reported. Many fields were dripping honeydew. The first spraying succeded in reducing the population but did not control the whitefly. The second spraying started immediately after the first was completed in mid-October and a third was applied in November. This was a "whitefly year" in the cotton-growing area of Sudan. A COTTON THRIPS (Caliothrips fumipennis) was present in the Tokar Delta but caused no damage. In the Gash Delta, populations built up during early October enough to warrant spraying. Infestations of the thrips were general in the Sennar District, and spraying was carried out during August and September. This pest was reported in both Kosti and Dueim Districts where infested fields were sprayed in conjunction with cotton jassid control. Spotted infestations were reported from Gedaref and were sprayed. Many "pockets" of the thrips were reported in the south and central Gezira. A FLEA BEETLE (Podagrica puncticollis) was again serious in the Gedaref District during August and September; margins of 25,000 acres of cotton were sprayed to prevent invasions from nearby fallow ground. In central Gezira, heavy damage occurred to three cotton blocks before beetle was brought under control; 15,000 acres sprayed during August. P. punticollis also caused serious damage in Melut scheme; 3,000 acres sprayed. All cotton seed in the

government schemes is treated with a systemic insecticide to protect cotton seedlings from flea beetle attacks. Infested trial plots at Khashm el Ghirba were sprayed. Early attacks were also reported in the Sennar District. COTTON APHID (Aphis gossypii) was present in the Tokar Delta, but caused no damage. It was common in all cotton fields throughout Equatoria Province and was also reported present in the Nuba Mountains. COTTON STAINERS (Dysdercus spp.) were common in Equatoria Province cotton fields, with heavy infestations reported from Yei and Meridi Districts during January. They were important insects on cotton in the Nuba Mountains. A regular control campaign was carried out during the dormant season in June. EGYPTIAN COTTONWORM (Prodenia litura) was reported present in several blocks in the Managil and along the White Nile south of Kosti. BOLLWORMS (Heliothis armigera and H. peltigera) were present in the Tokar Delta, but damage was negligible compared to last year when much of the crop was lost. H. armigera damaged about 5 percent of the bolls in the Gash Delta during January, then became inconsequential. It was present in the Gezira and in fringe areas of Gedaref, Sennar, Kosti and Dueim Districts. Several fields were treated in each district. A RED BOLLWORM (Diparopsis watersi) was reported present during March in the Tokar Delta and during January-March in the Gash Delta where it was reported to have infested 20 to 30 percent of the bolls. It was serious in cotton in the Nuba Mountains during September and October and also serious in parts of the Gedaref District where last season's cleanup campaign was lax. Spraying was done during October in both the Nuba Mountains and the Gedaref District. In the White Nile schemes, D. watersi is being reported further north each year. BOLLWORMS (Earias insulana and E. biplaga) were present in the Tokar Delta, but were serious only at the end of the season during March and April. E. insulana infested up to 40 percent of cotton bolls at Khashm el Ghirba trial plots. Infestations were reduced to some extent by several sprayings during February. A reported 20 percent of the bolls were infested during January in the Gash Delta dropping down to 2 percent by the end of March; and infestations were present in fringe areas around Sennar District, the Gezira, White Nile and Gedaref sections. PINK BOLLWORM (Pectinophora gossypiella) caused slight damage in trial plots at Khashm el Ghirba and was sprayed at the same time as other bollworms. It caused some damage during March and early April in the Tokar Delta and was present in spotted localities along the Blue and White Niles but pink bollworm was common and the main pest of cotton in Equatoria Province during 1963. All cotton seed is heat-treated to keep infestations under control. A TERMITE (Microtermes aluco) caused considerable damage to cotton in the Tokar Delta. Up to 40 percent of the plant holes were destroyed in some blocks. It was present in all dry areas in this region and was reported present in most of the other cotton-growing regions. Cotton seed was treated with insecticide to help keep down damage. COTTON STEM BORER (Sphenoptera gossypii) caused slight damage in the Tokar Delta but was reported in the Gash Delta as infesting from 20 to 60 percent of stalks during March. This is a great increase over prior years in the Gash Delta, which may be due to the presence of cotton stalk material stored nearby at a paper factory. GRASSHOPPERS were baited for control in cotton fields of the Tokar Delta, and controls were also necessary in seven blocks in the central group of the Gezira. Other insects reported on cotton were small ANTS in the Nuba Mountains and a MIRID (Helopeltis sp.) and COTTONSEED BUG (Oxycarenus hyalinipennis) in Equatoria Province. The cottonseed bug was also present in Shambat cotton-breeding plots. A PSYLLID was reported to be common on cotton in a small area in the Meridi District. A LYGUS BUG was present in the Sennar-Suki District, but damage was slight as compared with 1962 when 10,000 acres required treatments.

Stored-product Insects: LESSER GRAIN BORER (Rhyzopertha dominica), RICE WEEVIL (Sitophilus oryzae), ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) and KHAPRA BEETLE (Trogoderma granarium) were present in practically all areas where agricultural products were stored. Khapra beetle is most serious in the Port Sudan area as this is the major shipping center for the country. Most of the exports fumigated at Port Sudan are for the khapra beetle. The FLOUR BEETLES (Tribolium confusum and T. castaneum) were a major problem due to their very

dense populations in practically all stored-product warehouses. A GRAIN MOTH (Corcyra sp.), CADELLE (Tenebroides mauritanicus), COCKROACHES and SILVERFISH were present in varying numbers in Port Sudan and other storage centers. Except for sanitation measures, very little control activities were attempted this year.

Castorbean Insects: CASTORBEAN CATERPILLAR (Achaea catella) and a PHYCITID (Phycita diaphana) were found on castorbean at Hudeiba, the latter being found in flower clusters as well as on the leaves. A. catella and the NOCTUIDS (Grammodes geometrica, Spodoptera exigua and Prodenia litura) caused slight damage at Khashm el Ghirba before being controlled by spraying activities. A SPIDER MITE (Eutetranychus orientalis) appeared on the late-sown castorbean in the Gash Delta during February. Also present in the Gash Delta were WHITEFLIES, LEAFHOPPERS (Erythroneura sp.), THRIPS, TERMITES and a STEM BORER (Sphenoptera sp.).

Coffee and Cacao Insects: A LEAF MINER (Leucoptera sp.) caused damage to coffee in several localities in Equatoria Province. Increased attacks by a LEAF SKELENTONIZER (Leucoplema dohertyi) were reported in 1963. GREEN SCALE (Coccus viridis) and another SCALE (Coccus sp.) were reported in all coffee-growing areas. Attacks of a MEALYBUG were more numerous than in 1962. TERMITES caused damage to trees near Yambio and several nearby areas. All government coffee schemes were sprayed to control the above insects. Control measures were also undertaken to control the COFFEE BERRY BORER (Stephanoderes hampei) during May and June. WHITE COFFEE BORER (Anthores leuconotus) was observed in three plantations near Ezo. A COFFEE TRUNK BORER was reported at Yambio, Yei, Juba, Lujula, Wadupe, Kagelu and Torit cultivations. Tree trunks were treated with an insecticide on all government schemes. A THRIPS (Diarthrothrips coffeae) was reported present on a few trees in the Yambio District. THRIPS and TERMITES at Juba and at Yambio were the only insects reported observed on cacao.

Summary of Insect Conditions in Eritrea, Ethiopia

Prepared by W. O. Ridgway

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) breeding occurred in planted millet on the Red Sea coastal plain north of Massawa during early February. Local, solitary populations were supplemented by an influx of a gregarious phase swarm from across the Red Sea, possibly Yemen. Both solitary and gregarious phases prevailed simultaneously and continued so for the duration of the breeding season. Hatching was erratic and widely scattered. No extensive bands developed. Damage to crops was negligible. The combination of some aerial drift spraying, desiccation of eggs laid in drying drift sand and parasitism of late-stage "hoppers" and fledgling adults eliminated the threat in an area covering approximately 12 square miles. A small amount of hatching occurred in another coastal area approximately 25 miles north of the above area. Twenty-three first and second-stage "hopper" bands were controlled there with an exhaust sprayer. The bands were scattered over an area of six square miles and all known bands were eliminated. BUSH GRASSHOPPER (Phymateus viridipes) was commonly found clustered on small grains during August and September, but no damage was noted by the first to fourth-stage nymphs except to two common native bushes, Verbascum sp. and Ocimum sp., and to cultivated broadbeans. Reports of above normal numbers were received from all parts of the plateau region. Some hand dusting and baiting by the Ethiopian Locust Unit was done where infestations were very conspicuous.

NUTGRASS ARMYWORM (Spodoptera exempta) appeared in September in two areas of southern Eritrea. Teff, a small seeded Gramineae, cultivated for making a local bread, was seriously damaged. The infestations were controlled by thousands of migrating storks, some hand dusting and by parasitism. DURRA STALK BORER

(Sesamia cretica) and MAIZE STALK BORER (Busseola fusca) were both common in corn and sorghum. The tall, large stems of local varieties seem to tolerate a heavy population. A GREEN STINK BUG (Nezara sp.) was common in the eastern lowlands, but did not reach population levels to justify controls. CORN LEAF APHID (Rhopalosiphum maidis) was very common on sorghum, but was heavily parasitized and attacked by predators. An EARWORM (Heliothis armigera) damaged imported Kenya white corn, but did not seem to injure the native flint corn seriously. The SUDAN DURRA BUG (Agonoscelis versicolor) was common on durra and sesame.

Fruit Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was common in all commercial citrus groves. An average of 25 per week from mid-August onward were trapped in a single Steiner trap placed in an orchard of mixed citrus. BLACK PARLATORIA SCALE (Parlatoria zizyphus) was heavy on all citrus trees which were shaded by larger trees such as mango and papaya. Lighter infestations occurred on open, pruned, unshaded trees. A LEAF MINER (Phyllocnistis sp.) was common on citrus, being most important on nursery stock. A PSYLLID (Spanioza erythreae) caused some damage to nursery stock and young trees; some spraying was done. MEALYBUGS (Pseudococcus spp.) caused some concern on bananas due to export requirements, but caused very little economic damage. Small ANTS and weed hosts were closely related to the spread of the mealybugs in plantations. Dipping of bananas for export in a 2.0 percent oil solution failed to control the mealybugs which were in the dried flowering tips of the bananas. A MITE (Eutetranychus sp., probably orientalis) was common on papayas in the western lowlands. A ROOT LESION NEMATODE (Pratylenchus sp.) caused much concern on bananas, particularly in new, young plantations. Some soil fumigation and experimental dipping of planting shoots were done.

Vegetable Insects: A CUTWORM (Agrotis sp.) caused considerable damage to young plants where weed growth had prevailed. A MELON FLY (Dacus ciliatus) caused extensive malformation of Zucchini squash grown in the eastern lowlands. DIAMONDBACK MOTH (Plutella maculipennis) and CABBAGE APHID (Brevicoryne brassicae) were very serious on cabbage. Controls were necessary. POTATO APHID (Macrosiphum euphorbiae) was very heavy on most potato and tomato plantings. SWEETPOTATO WHITEFLY (Bemisia tabaci) was very heavy on tomatoes on the plateau and in the western lowlands. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) and MELON APHID (Aphis gossypii) were common on cucurbits and caused serious damage in many areas.

Cotton Insects: The SPINY BOLLWORM (Earias insulana) and OLD WORLD BOLLWORM (Heliothis armigera) were the two most destructive pests of cotton. The use of insecticide for their control has been accepted as a necessity. The SWEETPOTATO WHITEFLY usually stimulates control because it becomes so numerous and causes readily noticeable damage. An outbreak of THRIPS (Caliothrips sp.) and a FLEA BEETLE (Podagrica puncticollis) occurred on cotton in the two to six-leaf stage in the western lowlands. Controls were necessary to prevent complete defoliation of the plants. COTTON STAINERS (Dysdercus cardinalis and D. nigrofasciatus) were common in the eastern lowlands but not in the western lowlands. PINK BOLLWORM (Pectinophora gossypiella) was common during late season on cotton, okra and wild hibiscus in the western lowlands but was no economic threat. None was found in the eastern lowlands. A COTTON STEM BORER (Sphenoptera patrizii) presents a threat to growing stub cotton for more than one year. This practice is being experimented with in the western lowlands where flood-type irrigation, in a single application, is practiced. Second-year yields from the previous year's roots have doubled those of the first season, besides producing a much earlier crop. A TERMITE caused serious thinning of cotton stands in the diverted water system of cultivation in the eastern lowlands.

Stored-product Insects: RICE WEEVIL (Sitophilus oryzae), LESSER GRAIN BORER (Rhyzopertha dominica), A FLOUR BEETLE (Tribolium sp.) and ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) were common in all older grain storages, particularly in some of the older U. S. PL 480 grain sorghum. A BRUCHID (Callosobruchus chinensis) was common in broadbeans being inspected for export.

Shade Tree and Ornamental Insects: HEMISPHERICAL SCALE (Saissetia hemisphaerica) and BLACK SCALE (S. oleae) were common on Ficus sp. and Schinus sp. A BOMBYCID (Trilocha ficicola) defoliated many of the Ficus sp. APHIDS were very heavy on ornamental flowers and required control. TERMITES were observed weakening roots of large Eucalyptus trees to the extent that they were easily blown over by the wind.

Summary of Insect Conditions in Ethiopia

Prepared by P. M. Schroeder

Cereal and Forage Insects: NUTGRASS ARMYWORM (Spodoptera exempta) was extremely heavy in all provinces starting in Harar in April and reaching a peak in Shoa Province during June. Grass crops had losses that ranged from 30 to 100 percent. In Harar Province, the average losses were estimated to be approximately 75 percent. A complex of GRASSHOPPERS caused some damage in the Nazaret and Ambo area on teff. These infestations caused more concern than in normal years due to the severe nutgrass armyworm losses. No DESERT LOCUST (Shistocerca gregaria) swarms were found in southern or central Ethiopia in 1963, although a number of swarms were reported. A SPITTLEBUG was found on pasture grasses west of Nazaret. A LEAFHOPPER (Tettigoniella cosmopolita) was heavy on grasses in Ginagere. Corn in the Nazaret-Debre Zeit area was lightly infested with a COREID BUG (Cletus sp), a LYGAEID BUG (Lygaeus panduras), CORN LEAF APHID (Rhopalosiphum maidis), MAIZE STALK BORER (Busseola fusca) and an EARWIG (Forficula senegalensis). Sorghum in the Addis Ababa-Sabatta-Nazaret area had light populations of L. panduras, Cletus sp., an undetermined SAWFLY, SOUTHERN GREEN STINK BUG (Nezara viridula) and the PENTATOMIDS (Eurydema ornatum and Agonoscelis sp.).

Coffee Insects: Light infestations of a PENTATOMID (Antestia orbitalis) were observed at Sabatta.

Fruit Insects: VEDALIA (Rodolia cardinalis) was successfully introduced into Ethiopia in 1962. They could not be found last year, but in 1963 they appeared in Alemaya where several thousand were observed. Vedalia is now being introduced in other areas of Ethiopia. Light infestations of a PAPILIONID BUTTERFLY (Papilio demoleus var. demodocus) and a BROWN SCALE INSECT were found on citrus in the Sabatta area. WHITEFLIES were found on figs at Debre Zeit.

Truck Crop Insects: Cabbage was moderately infested with APHIDS and several species of LEPIDOPTERA at Sabatta. Squash at Sabatta was severely damaged by a LEAF BEETLE (Leptaulaca fissicollis).

Miscellaneous Insects: A PIERID BUTTERFLY (Pieris sp.) did a medium amount of defoliating in various gardens in the Addis Ababa area, affecting several varieties of plants. Light to heavy infestations of APHIDS were found on roses in Addis Ababa. A heavy infestation of BAGWORMS occurred on acacia trees in Dira Dawa during September. A PAPILIONID (Papilio sp.) defoliated ornamental

citrus in Addis Ababa. The NOCTUIDS ("Plusia" limbirena and Chrysodeixis sp.) were common in gardens. Several flights of a TERMITE (Macrotermes natalensis) were observed in the Addis Ababa area. Numbers of a SYRPHID FLY (Eristalis sp.) were found at the Emperor's horse barn. A COCCID (Lepidosaphes sp.) was common on trees in Addis Ababa. COTTONY-CUSHION SCALE (Icerya purchasi) was heavy on a variety of trees at Alemaya.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

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VOL. 14 No. 3 January 17, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 January 17, 1964 Number 3

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRAIN APHIDS continue at light or noneconomic levels in the Southwest. Large numbers of dead aphids of several species observed in numerous fields checked throughout northwest Oklahoma which indicate moderate numbers present before onset of near zero temperatures last weeks of December. First ARMY CUTWORM activity of season noted in Oklahoma in scattered locations in small grain fields throughout northwest counties. Counts highest in Okeene area (up to 3 larvae per foot of row). Also in Oklahoma, first CLOVER LEAF WEEVIL activity of season noted on overwintering alfalfa in Okeene area of Blaine County. (p. 31).

Pest complex on decrease generally on Florida citrus. CITRUS RED MITE population dropped near the lowest level on record at end of December, and FLORIDA RED SCALE was at lowest level on record. However, immatures of WHITEFLIES at highest level recorded for December in 12 years of record. (p. 32).

GREEN PEACH APHID increasing slowly in sugar beets and other host plants in Maricopa County, Arizona, and new infestation of PINK BOLLWORM found in Pinal County, Arizona. (p. 33).

TEA SCALE (Fiorinia theae) light to extremely heavy on several ornamental plants in Lee, Macon and Montgomery Counties, Alabama. (p. 34).

CIGARETTE BEETLE (Lasioderma serricorne), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and RED FLOUR BEETLE (Tribolium castaneum) caused moderate damage to 2,000 pounds of tomato seed in Tift County, Georgia; and GRANARY WEEVIL (Sitophilus granarius) heavy in untreated farm storage wheat and barley in Marshall County, Oklahoma. (p. 35).

CORRECTIONS

See page 36

SPECIAL REPORTS

Interceptions of Special Interest at U.S. Ports of Entry. (p. 38).

Status of the European Corn Borer in 1963. (pp. 39-46).

Reports in this issue are for week ending January 10, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 13

Fair weather prevailed over most of the East and West at the beginning of the week. It was cloudy over the Ohio and Mississippi River Valleys. Snow fell over the Great Lakes region and rain or snow in the Far Northwest. A cold front extended from the Great Lakes southwestward to Texas. As the front moved eastward, it produced rain over the eastern third of the Nation.

A second front moved into the Northwest early in the week and by Wednesday extended from Huron, South Dakota, southward to Concordia, Kansas, and southwestward to El Paso, Texas. This storm produced precipitation from the western Great Plains to the Great Lakes in the north and to the Atlantic Ocean in the south. Snow fell from the Rocky Mountains to the Great Lakes, and the Weather Bureau warned travelers of the hazardous driving conditions where snow and freezing rains slicked the highways.

Arctic air from Canada spread across the Nation during the last half of the week. Temperatures dropped to below zero over much of the Great Basin, the Rocky Mountains, and the northern and central Great Plains. By the weekend, a deepening storm brought extensive rains to the Southeast and snow from the western Great Plains eastward to New England. Snowfall ranged from a few inches along the western edge of the Great Plains to a foot or more in Illinois and eastward. Blizzard conditions prevailed in some areas. Strong winds piled the snow in drifts several feet deep. Highways became clogged and traffic halted. In Indiana, several hundred motorists became marooned between Kentland and Lafayette and sought shelter at farm homes and in villages. Many schools in the Northeast were closed for a day or more because of the storm.

Temperatures averaged below normal over most of the Nation. The main exceptions were in the Far Northwest, over parts of the upper Mississippi River Valley, and along the Atlantic coast from Florida to southern New England. Temperature departures ranged from +8° in central Washington to -12° over parts of the Great Basin. Over much of the Nation, temperatures averaged near normal at the beginning of the week, slightly below normal at midweek, and much below normal at the end of the period. Subzero temperatures occurred over the North Central States on several mornings during the latter half of the week.

Precipitation ranged from 1 to 3 inches along the Washington, Oregon, and northern California coast and from 2 to 5 inches over wide areas in the Southeastern States. Elsewhere, totals were generally less than 1 inch. Heavy snow fell over the northern Rocky Mountains and from Minnesota to Missouri and eastward to the Atlantic. Light snow fell in the mountains of New Mexico, over the western Great Plains, and across the Southland. A few flurries fell at Pensacola, Florida, on the 13th. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Small numbers found on overwintering alfalfa in one location in Garfield County. (Okla. Coop. Sur.). FLORIDA - Light in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Only an occasional very light infestation found in alfalfa in Dona Ana County. (N. M. Coop. Rpt.). OKLAHOMA - Light numbers found on Austrian winter peas in Garfield, Dewey and Blaine Counties. (Okla. Coop. Sur.). FLORIDA - Light in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Generally light in small grains in Chaves County; 10-25 per linear foot. (N. M. Coop. Rpt.). OKLAHOMA - Generally noneconomic in northwestern counties checked. Except for 3 fields checked (2 in Garfield County and 1 in Grant County), counts averaged less than 5 per linear foot in Garfield, Grant, Alfalfa, Woods, Woodward, Ellis, Dewey, Blaine and Kingfisher Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light in small grains in northwest counties; ranged 0-8 per linear foot. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Occasional light, spotted infestations noted in small grain fields in Luna and Dona Ana Counties. (N. M. Coop. Rpt.). OKLAHOMA - Light counts of 2-10 per linear foot noted in Garfield, Grant and Kingfisher Counties. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light in all fields of small grain checked in northwest counties; ranged 0-10 per linear foot. (Okla. Coop. Sur.).

GRAIN APHIDS - OKLAHOMA - Large numbers of dead aphids of several species observed in numerous fields checked throughout northwest area indicate moderate numbers present before onset of near zero temperatures last weeks of December. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - FLORIDA - Total of 10 collected in 200 sweeps in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

A PLANT BUG (Taylorilygus pallidulus) - FLORIDA - Four collected in 200 sweeps in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Five taken in 200 sweeps of Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - First activity of season noted in scattered locations in small grain fields throughout northwest counties. Infestations observed in Alfalfa, Woods, Dewey, Blaine and Kingfisher Counties; largest numbers noted in Okeene area (up to 3 larvae per foot of row). This corresponds with first activity based on survey records since 1958. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - FLORIDA - In Hairy Peruvian alfalfa, 5 small to medium larvae taken in 200 sweeps at Gainesville, Alachua County. (Mead).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - First activity of season noted on overwintering alfalfa in Okeene area, Blaine County; only small numbers present. (Okla. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - FLORIDA - Total of 10 collected in 200 sweeps of Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

FRUIT INSECTS

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Continues to feed; causing large amounts of gum at base of tree trunks on peach, plum and wild cherry in Lee, Macon, Montgomery and other central counties. Most noticeable on isolated peach and wild volunteer plum trees along ditchbanks and field fence lines. (McQueen).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Larvae light on lemon nursery stock in Oxnard, Ventura County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Moderate numbers causing some bloom drop in home citrus trees in Pinal County. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Light on citrus leaves in San Rafael, Marin County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - End of December - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 62 percent of groves (norm 67 percent); 47 percent economic (norm 45 percent). Citrus rust mite on fruit infested 44 percent of groves (norm 60 percent); 26 percent economic (norm 39 percent). Sharp decrease dropped leaf populations to average and fruit infestations to very low level. Further decrease expected to keep populations at low level through January. About 20 percent of groves will have heavy infestations. Highest districts Bartow, west coast and Brooksville. TEXAS CITRUS MITE (Eutetranychus banksi) infested 41 percent of groves (norm 33 percent); 18 percent economic (norm 10 percent). Decrease of past month will continue through January. Statewide population will be near average low level for January with only a few groves having important infestations. No districts expected to be in high range. CITRUS RED MITE (Panonychus citri) infested 45 percent of groves (norm 54 percent); 5 percent economic (norm 26 percent). Population dropped near the lowest level on record and will remain low in all districts. PURPLE SCALE (Lepidosaphes beckii) infested 83 percent of groves (norm 72 percent); 11 percent economic (norm 8 percent). GLOVER SCALE (L. gloverii) infested 64 percent of groves (norm 27 percent); 16 percent economic (norm 1 percent). CHAFF SCALE (Parlatoria pergandii) infested 73 percent of groves (norm 45 percent); 12 percent economic (norm 1 percent). YELLOW SCALE (Aonidiella citrina) infested 35 percent of groves (norm 11 percent); 6 percent economic (norm 1 percent). The above scale insects decreased but all continued above normal abundance. Little change expected. Only spotty and scattered infestations will be important. BLACK SCALE (Saissetia oleae) infested 33 percent of groves (norm 28 percent); 15 percent economic (norm 7 percent). Although infestations are unimportant at this time, number of overwintering scales is above average. FLORIDA RED SCALE (Chrysomphalus aonidum) infested 20 percent of groves (norm 57 percent); none economic (norm 10 percent). Now at lowest level on record and will continue very low. WHITEFLIES infested 79 percent of groves (norm 59 percent); 23 percent economic (norm 9 percent). Population of immatures is highest recorded for December in 12 years of record. Populations in this high range usually occur only in the summer months. Adult and egg forms have not been above average in recent months, indicating that conditions have been unusually favorable for the immatures which is the most destructive stage. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred))

TRUCK CROP INSECTS

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Medium in onion planting in Chino, San Bernardino County. (Cal. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Counts of larvae in sugar beet fields of Maricopa County averaged 5 per 100 plants. (Ariz. Coop. Sur.).

BEAN LEAF ROLLER (Urbanus proteus) - FLORIDA - Severe on leaves and stems of some collard plants at Key West, Monroe County. (Buchanan, Dec. 12).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Increasing slowly in sugar beets and other host plants in Maricopa County. (Ariz. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - CALIFORNIA - Probably this species, light in garlic plantings in Wheeler Ridge, Kern County. (Cal. Coop. Rpt.).

COTTON INSECTS

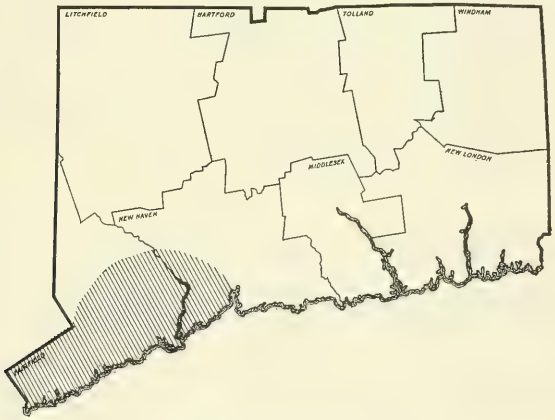
PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - New infestation found in Pinal County. (Ariz. Coop. Sur.).

BOLLWORM (Heliothis zea) - CALIFORNIA - Heavy in gin trash at Calipatria, Imperial County. (Cal. Coop. Rpt.).

AN EARWIG (Labidura sp.) - CALIFORNIA - Heavy in gin trash in Calipatria, Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A RED-PINE SCALE (Matsucoccus resinosae) - CONNECTICUT - This scale insect apparently spreading east and west at average rate of 5 miles in 3 years. Spread to north considerably less. General observations by operators of red pine plantations in infested area indicate that trees are dying at much lower rate than 5 years ago. Shaded area on accompanying map shows limits of known infestations as of November 1963, although not all trees within infested area are infested. Nurseries within infested area not allowed to grow red pine. (Turner).



Distribution of a Red-pine Scale
in Connecticut -- 1963

APHIDS - ALABAMA - Aphis spiraecola well established on Spirea spp. throughout Lee, Macon, Montgomery and other central counties; eggs and wingless forms present. Black eggs range few to hundreds per stem. These and other shrubs recently covered with ice for 36-48 hours, due to ice and snow storm. (McQueen). NEW MEXICO - Cinara tujafilina ranged light to heavy on arborvitae in Albuquerque, Bernalillo County; honeydew very noticeable on leaves and branches. (N. M. Coop. Rpt.). CALIFORNIA - Myzus ornatus nymphs and adults medium on leaves of Lantana camara in Santa Ana, Orange County. Eggs and adults of Aphis gossypii and Macrosiphum rosae medium on jacaranda tree nursery stock in Arlington, Riverside County. Neomyzus circumflexus heavy on mimulus and fuchsia nursery stock in Red Bluff, Tehama County. Lachnus salignus adults heavy on weeping willow in Riverside, Riverside County, and on willow in Fresno, Fresno County. Adults of Neophyllaphis podocarpi heavy on Podocarpus macrophyllus in South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Lightly damaged Parkinsonia aculeata at De Leon Springs, Volusia County, December 30. This is a new Florida Department of Plant Industry host record. (Roberts).

COCCIDS - CALIFORNIA - Phenacoccus gossypii light on Lantana camara in Costa Mesa, Orange County. Aonidiella citrina medium on euonymus nursery stock in Corning, Tehama County. Lecanium cerasorum medium on liquidamber trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.). ALABAMA - Fiorinia theae light to extremely heavy on Camellia japonica, C. sasanqua, Burford holly and other ornamental hollies in Lee, Macon and Montgomery Counties; all stages, except eggs, present. Many isolated plants 10-60 percent defoliated, with many damaged leaves to fall before new growth begins. (McQueen). Ceroplastes ceriferus heavy on several holly shrubs, and Neolecanium cornuparvum light on few magnolias in Mobile area, Mobile County. (Eden). FLORIDA - Lepidosaphes maskelli severely damaged stem of Juniperus sp. at Forest City, Seminole County (Youtsey, Dec. 3), and moderately damaged leaves of Juniperus sp. at Tampa, Hillsborough County (Simmons, Dec. 30).

LANTANA SEED FLY (Ophiomyia lantanae) - CALIFORNIA - Medium in fruit of lantana in street plantings in Anaheim, Orange County. (Cal. Coop. Rpt.).

SOUTHERN RED MITE (Oligonychus ilicis) - CALIFORNIA - Heavy on leaves of pyracantha in Yuba City, Sutter County. (Cal. Coop. Rpt.).

A SPIDER MITE (Oligonychus sp., probably milleri) - CALIFORNIA - Heavy on Pinus halpensis in Claremont, Los Angeles County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Trisetacus quadrisetus) - CALIFORNIA - Infested large lot of juniper nursery stock in Sonoma, Sonoma County. (Cal. Coop. Rpt.).

SPOTTED GARDEN SLUG (Limax maximus) - MARYLAND - Laying many eggs in flower garden at Berwyn, Prince Georges County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - GEORGIA - Averaged 0.26 per animal in 110 Hereford yearlings in Putnam County and 0.21 grub per animal on 65 Hereford yearlings examined in Spalding County. (Roberts, Dec. 16, 17).

A CATTLE LOUSE (Solenopotes capillatus) - GEORGIA - Light on 4 of 110 animals in Putnam County. (Roberts, Dec. 17).

HOUSEHOLD AND STRUCTURAL INSECTS

COCKROACHES - UTAH - Supella supellectilium infesting home in Cache County. (Knowlton). Blattella germanica infesting restaurant at Logan, Cache County. (Hanson, Knowlton). PENNSYLVANIA - Blatta orientalis moderate in home at State College, Centre County. (Menusan, Jan. 6).

ALMOND MOTH (Cadra cautella) - ALABAMA - Causing nuisance; adults noted in homes in Houston and Coffee Counties. Larvae evidently feeding on vegetable and stored products in pantries and other storage facilities. (Ledbetter).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Adults appeared in building at College Park, Prince Georges County. (U. Md., Ent. Dept., Jan. 6).

CIGARETTE BEETLE (Lasioderma serricorne) - ALABAMA - Heavy in 3 homes in Lee County; feeding on paprika, chili powder and dog biscuits, (Ledbetter, et al.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Adults heavy and very annoying about property in Arbutis, Baltimore County. (U. Md., Ent. Dept., Jan. 2).

CLOVER MITE (Bryobia praetiosa) - NORTH CAROLINA - Noted in commercial laboratory in Wilson County. (Mount).

STORED-PRODUCT INSECTS

Stored-product Insects in Georgia - Lasioderma serricorne, Oryzaephilus surinamensis and Tribolium castaneum caused moderate damage to 2,000 pounds of tomato seed in Tift County. (Brightwell, Jan. 8).

GRANARY WEEVIL (Sitophilus granarius) - OKLAHOMA - Heavy; ranged 118-143 per quart of grain in farm storage wheat and barley in Marshall County. None found in bins treated before storage. (Okla. Coop. Sur.).

LESSER GRAIN BORER (Rhyzopertha dominica) - OKLAHOMA - Ranged 24-48 per quart of grain in farm stored barley and wheat in Marshall County. (Okla. Coop. Sur.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - OKLAHOMA - Light; 5-10 per quart in farm stored barley and wheat in Marshall County. (Okla. Coop. Sur.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Blacklight trap collections from infested Monroe County potato storage show very low incidence of adults following daily fogging operations with pyrethrins. (Laser, Wells).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Eradicative treatments continue in city of Sacramento, Sacramento County. Survey in adjacent areas to known infestation revealed one additional block infested. (Cal. Coop. Rpt.).

A COREID BUG (Leptocoris rubrolineatus) - CALIFORNIA - Heavy adult and nymph populations on maple and invading home in Burbank, Los Angeles County. (Cal. Coop. Rpt.).

MILLIPEDS - GEORGIA - Averaged 15 per square yard in lawn in Moultrie, Colquitt County. (Elder, Jan. 7).

CORRECTIONS

CEIR 14(1):7 - The Family Name of Aphids - Change reference in Bull. Zool. Nomen., vol. 20, pl. 5, to read: ...vol. 20, pt. 5.....

CEIR 14(2):19 - Afghanistan - Paragraph 2, line 7 - Delete reference to SWEETCLOVER APHID (Therioaphis riehmi).

CEIR 14(2):26 - First paragraph, next to last line - The SUDAN DURRA BUG (Agonoscelis versicolor) should read (Agonoscelis pubescens).

CEIR 14(2):27 - Ethiopia - First paragraph, line 7 - (Shistocerca gregaria) should read (Schistocerca gregaria). Lines 12 and 15 - (Lygaeus panduras) should read (Lygaeus pandurus).

LIGHT TRAP COLLECTIONS

	Temperature F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris * (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA Gainesville 1/8			BL						1		1													
GEORGIA Tifton 12/26/63-1/8/64			BL							0	0								0	0				
SOUTH CAROLINA Charleston 12/30/63-1/5/64	29-62	1.44	BL	3			0		0		0	1					0	0	0	0	0		0	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O - other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole - cole crops (crucifers); cott. - cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. lettuce; pean. = peanut; pepp. - pepper; pot. = potatoes; SC = sweet corn; sol. - solanaceous plants (unspecified); soy. - soybean; TC - truck crops (unspecified or mixed); tob. = tobacco; tom. - tomato.

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on October 31, 1963, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

A GIANT AFRICAN SNAIL (Achatina fulica (Bowdich)) in air baggage in passenger's cosmetic case at Honolulu International Airport, Hawaii.

LEEK MOTH (Acrolepia assectella (Zell.)) in ship's stores at Wilmington, North Carolina.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) in pomegranate in air baggage at San Pedro, California.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) one time each in coffee berries in air baggage and airmail from Hawaii; in ship's stores at Philadelphia, Pennsylvania, and in coffee berries at San Pedro, California.

AN AVOCADO SEED WEEVIL (Conotrachelus perseae Barber) (a Mexican and Central American species) in baggage at Laredo, Texas.

CABBAGE MOTH (Mamestra brassicae (L.)) 10 times in stores; 8 times at New York, New York; 1 time each at Mobile Alabama, and San Juan, Puerto Rico.

AN OLETHREUTID MOTH (Matsumuraeses phaseoli (Mats.)) in string beans at Seattle, Washington.

A LEAF MINER FLY (Phytomyza sp., probably rufipes Mg.) 5 times in stores; 1 time each at Baltimore, Maryland; Corpus Christi, Texas; and Norfolk, Virginia; and 2 times at Galveston, Texas.

A STENOMID MOTH (Stenoma catenifer (Wlsm.)) 11 times in baggage; 5 times at Miami, Florida; once each at Houston and Laredo, Texas; once each at New York, New York, and Charleston, South Carolina; and once each in stores at Galveston, Texas, and Philadelphia, Pennsylvania.

KHAPRA BEETLE (Trogoderma granarium Everts) 8 times (5 times in ships' stores, 1 time in ship's hold and 2 times contaminating cargoes of guar gum and celery seed sacks); 3 times at San Pedro, California; 2 times at Cleveland, Ohio; and one time each at Wilmington, North Carolina; Philadelphia, Pennsylvania; and New York, New York.

GOLDEN NEMATODE (Heterodera rostochiensis Woll.) 18 times; 5 times in New York, New York; 3 times in Chicago, Illinois; 2 times each at New York International Airport, New York, and Honolulu, Hawaii; and one time each at Hoboken, New Jersey; Norfolk, Virginia; Boston, Massachusetts; San Diego, California; and Jacksonville and Fort Lauderdale, Florida.

STATUS OF THE EUROPEAN CORN BORER IN 1963[1/]

Introduction: Cooperating agricultural agencies in 16 States reported on surveys conducted in their States to determine the abundance and distribution of European corn borer (Ostrinia nubilalis (Hübner)) in 1963. All survey data, summaries or records of field observations were submitted to Survey and Detection Operations in Hyattsville, Maryland, for final processing. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after it was compiled.

The 1963 European corn borer survey was conducted during the late summer and fall of the year. The survey is designed to measure the fall population of European corn borer larvae. The participating States were encouraged to time the surveys to include a high percentage of late instars whenever possible. In all cases, except for some minor differences in compiling data, the accepted survey methods were used. The survey was continued on a district basis whenever possible in 1963. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: Twenty-five counties were reported infested for the first time in 1963 according to ARS records, but all of the new counties were found in known infested States. It was a considerable increase from the last four years; only 4 new counties were reported in 1962, 15 in 1961, 6 in 1960 and 13 in 1959.

The new counties reported infested in 1963 were as follows: North Carolina - Caswell, Person, Forsyth, Guilford, Davidson, Randolph, Harnett, Anson and Robeson; South Carolina - Lancaster, Kershaw, Sumter, Lee, Chesterfield, Darlington, Marlboro, Florence, Dillon, Marion and Horry; Georgia - Warren, Peach, Houston and Macon; Kansas - Seward.

Special surveys were conducted during the fall in New Mexico, but no European corn borers were found.

Abundance: Fall counts of European corn borer larvae in the North Central States were generally about the same as those in 1962 on the average. The number of borers per 100 plants averaged 113 in 1963 compared to 99 in 1962. However, substantial increases in population were noted in northwestern Iowa and in southeastern North Dakota, and rather high levels were again recorded in several Nebraska districts. Population levels in Illinois were highest in the northwest, northeast and west districts, but counts over the State were about the same as in 1962. A general decrease was noted in South Dakota, except for the southeast district, where the borer was only slightly reduced in number. In Minnesota, counts were highest in the west central district, similar to those that occurred last fall. On the average, counts in Minnesota were up a little from 1962. Population levels in the other North Central States continued low, with the exception of those in the southeast district (District IX) of Missouri where they were still somewhat high. The thirteen districts in the North Central States where counts were 200 or more borers per 100 plants were as follows: Illinois - northwest (207); Iowa - District I (279), District II (227), District V (263); Minnesota - west central (200); Missouri - southeast (223); Nebraska - north (201), northeast (320), central (233), east (268), south (218); North Dakota - southeast (391); South Dakota - southeast (260).

In the Eastern States, population levels continued at a relatively low level. Borers per 100 plants averaged 77 in Delaware, 74 in Maryland and 76 in New Jersey. In Arkansas, European corn borer populations were lower than in the fall of 1962. This was due, in part, to the fact that there was a smaller percentage of corn planted in June and July than there was in 1962 and past years.

1/ Survey data provided by State agricultural agencies. Data compiled and summarized by Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, United States Department of Agriculture.

Table 1 - Summary by States of European Corn Borer Abundance in Corn, Fall of 1963, Compared with Data for 1962

State	1962			1963			Comparable Districts or Counties Surveyed Both Years		
	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	Number	Borers per 100 Plants 1962	Borers per 100 Plants 1963
Eastern									
Delaware	1	68	3	1	77	3	1	68	77
Maryland	3	59	21	3	74	21	3	59	74
Total	4		24	4		24			
Average 1/								63	176
North Central									
Illinois	7	96	39	7	95	35	7	96	95
Indiana	12	29	92	12	36	92	12	29	36
Iowa	12	88	99	12	160	99	12	88	160
Kansas	3	43	25	3	43	25	3	43	43
Minnesota	7	67	69	7	90	71	7	67	90
Missouri	8	72	37	7	76	33	7	77	76
Nebraska	7	201	72	7	206	72	7	201	206
North Dakota	1	285	5	1	391	5	1	285	391
Ohio	5	23	33	5	15	33	5	23	15
South Dakota	6	160 2/	44	6	107 2/	45	6	160	107
Wisconsin	9	17	58	9	21	58	9	17	21
Total	77		573	76		568			
Average 1/								99	113
Southern									
Arkansas	4	24	19	4	13	21	4	24	13
Other States									
Michigan	1	49	9	1	26	18			
New Jersey				1	76	12			

1/ Weighted averages based on districts surveyed
2/ Average based on 39 counties

Table 2 - European Corn Borer Abundance in Corn, Fall of 1963, Compared with Data for 1962

State (Districts or Counties)	Average Number of Borers Per 100 Plants 1962	1963
Arkansas (Ark. Ins. Sur.)		
Northwest	20	10
North Central	11	11
Northeast	44	12
East Central	21	19
Average	24	13
Delaware (Agr. Expt. Sta.)		
Kent	77	94
New Castle	51	66
Sussex	76	72
Average	68	77
Illinois (Natural History Survey, Ext. Ser.)		
Northwest	150	207
Northeast	64	116
West	149	150
Central	100	89
East	97	50
West-southwest	65	27
East-southeast	49	23
Average	96	95
	(101) 1/	(106) 1/
Indiana (Ext. Ser., Expt. Sta.)		
North-northwest	89	72
North-northcentral	28	46
North-northeast	14	46
Northwest	32	18
North Central	16	14
Northeast	21	16
Southwest	32	50
South Central	24	18
Southeast	27	16
South-southwest	30	62
South-southcentral	30	39
South-southeast	7	32
Average	29	36

State (Districts or Counties)	Average Number of Borers Per 100 Plants 1962	1963
Iowa (State Dept. of Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ; ENT, ARS, USDA)		
District I	100	279
District II	104	227
District III	25	54
District IV	141	185
District V	112	263
District VI	41	86
District VII	91	181
District VIII	86	73
District IX	76	179
District X	25	119
District XI	127	106
District XII	126	168
Average	88	160
Kansas (Ins. Sur.)		
Northeast	45	23
North Central	9	84
East Central	74	21
Average	43	43
Maryland (Agr. Ext. Ser., Ins. Sur.)		
Eastern Shore	64	94
Southern area	58	56
Western and Central areas	54	71
Average	59	74
Michigan (Ins. Sur.)		
Surveyed Counties	49	26
(Survey in 1962 conducted in 9 counties; survey in 1963 conducted in 18 counties)		

1/ Average based on 35 counties rather than districts

Table 2 - (Continued)

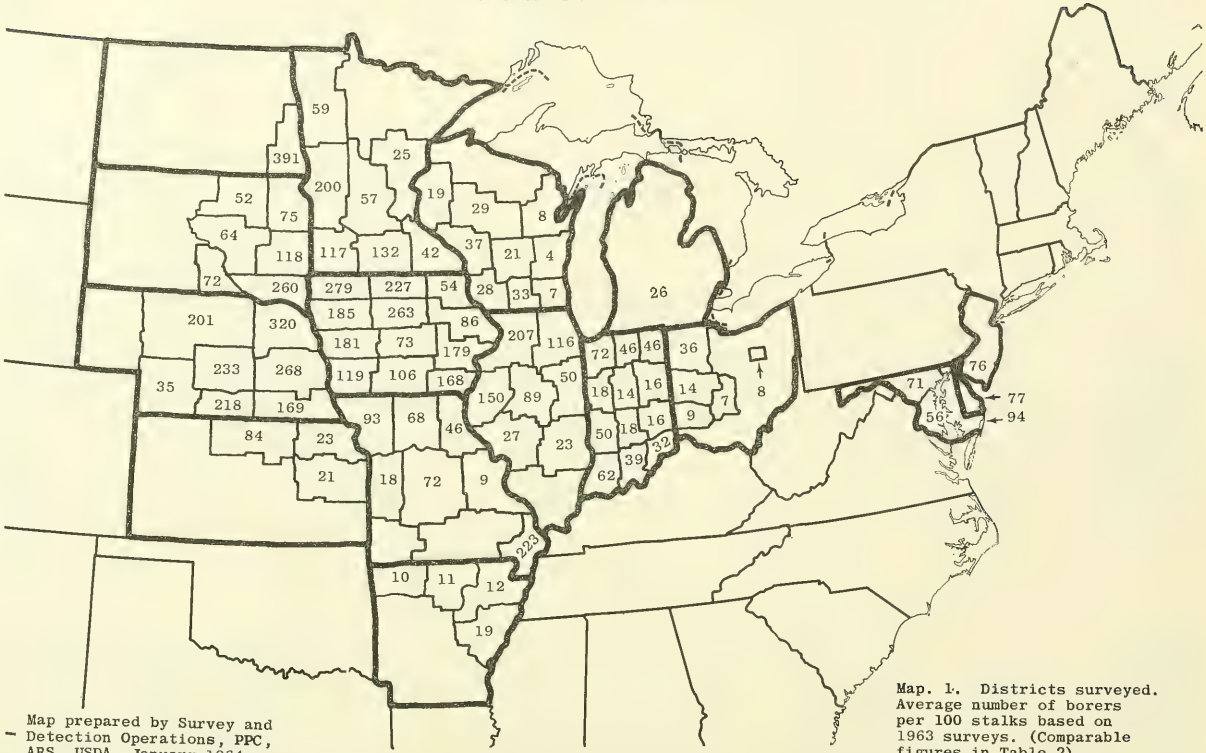
State (Districts or Counties)	Average Number of Borers Per 100 Plants 1962	1963
Minnesota (State Dept. of Agr.)		
Northwest	90	59
West Central	184	200
Central	30	57
East Central	17	25
Southwest	92	117
South Central	34	132
Southeast	20	42
Average	67	90
Missouri (Ext. Ser., Ins. Sur.)		
District I	59	93
District II	47	68
District III	32	46
District IV	30	18
District V	43	72
District VI	65	9
District VII	35	
District IX	263	223
Average	72	76
Average comparable districts (7)	77	76
Nebraska (Agr. Expt. Sta., Ext. Ser., Ins. Sur.).		
North	182	201
Northeast	294	320
Central	284	233
East	280	268
South	248	218
Southeast	105	169
Southwest	16	35
Average	201	206
New Jersey (Coop. Econ. Ins. Sur.)		
Sussex		9
Warren		8
Hunterdon		89
New Jersey (Continued)		
Somerset		51
Middlesex		66
Monmouth		64
Mercer		112
Burlington		107
Camden		89
Gloucester		164
Salem		97
Cumberland		58
Average		76
	(111) 1/	(79) 1/
North Dakota (State Dept. of Agr.)		
Southeast	285	391
Ohio (Expt. Sta.; Ext. Ser.; ARS, USDA)		
Northwest	43	36
West Central	16	14
Central	2	7
Southwest	28	9
Northeast	25	8
Average	23	15
	(26) 2/	(20) 2/
South Dakota (Agr. Expt. Sta., Ext. Ser.)		
North Central	76	52
Northeast	172	75
Central	162	64
East Central	207	118
Southeast	294	260
South Central	51	72
Average	160 3/	107 3/

1/ Average based on all samples rather than county average
2/ Average based on all samples rather than district average
3/ Average based on 39 counties

Table 2 - (Continued)

State (Districts or Counties)	Average Number of Borers Per 100 Plants 1962	1963
Wisconsin (State Dept. of Agr.)		
Northwest	35	19
North Central	6	29
West Central	27	37
Central	6	21
Southwest	32	28
South Central	24	33
Southeast	5	7
East Central	8	4
Northeast	11	8
Average	17	21

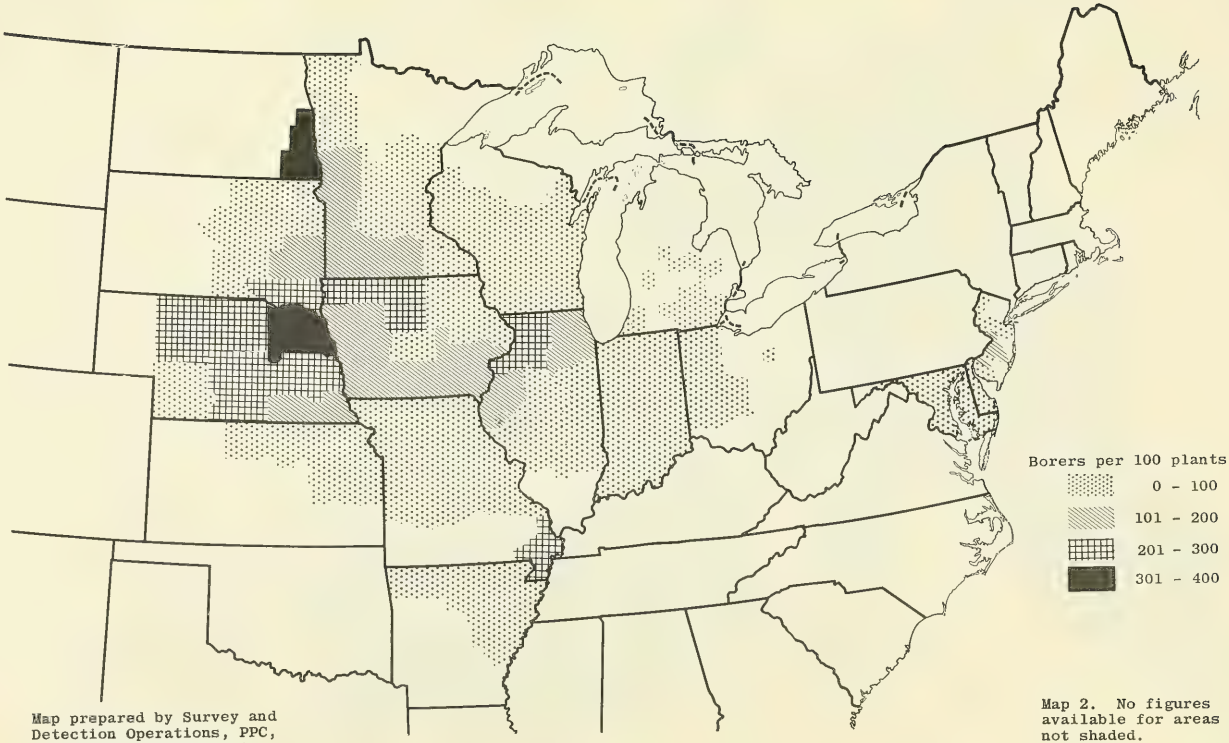
EUROPEAN CORN BORER ABUNDANCE
FALL 1963



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1964

Map. 1. Districts surveyed. Average number of borers per 100 stalks based on 1963 surveys. (Comparable figures in Table 2).

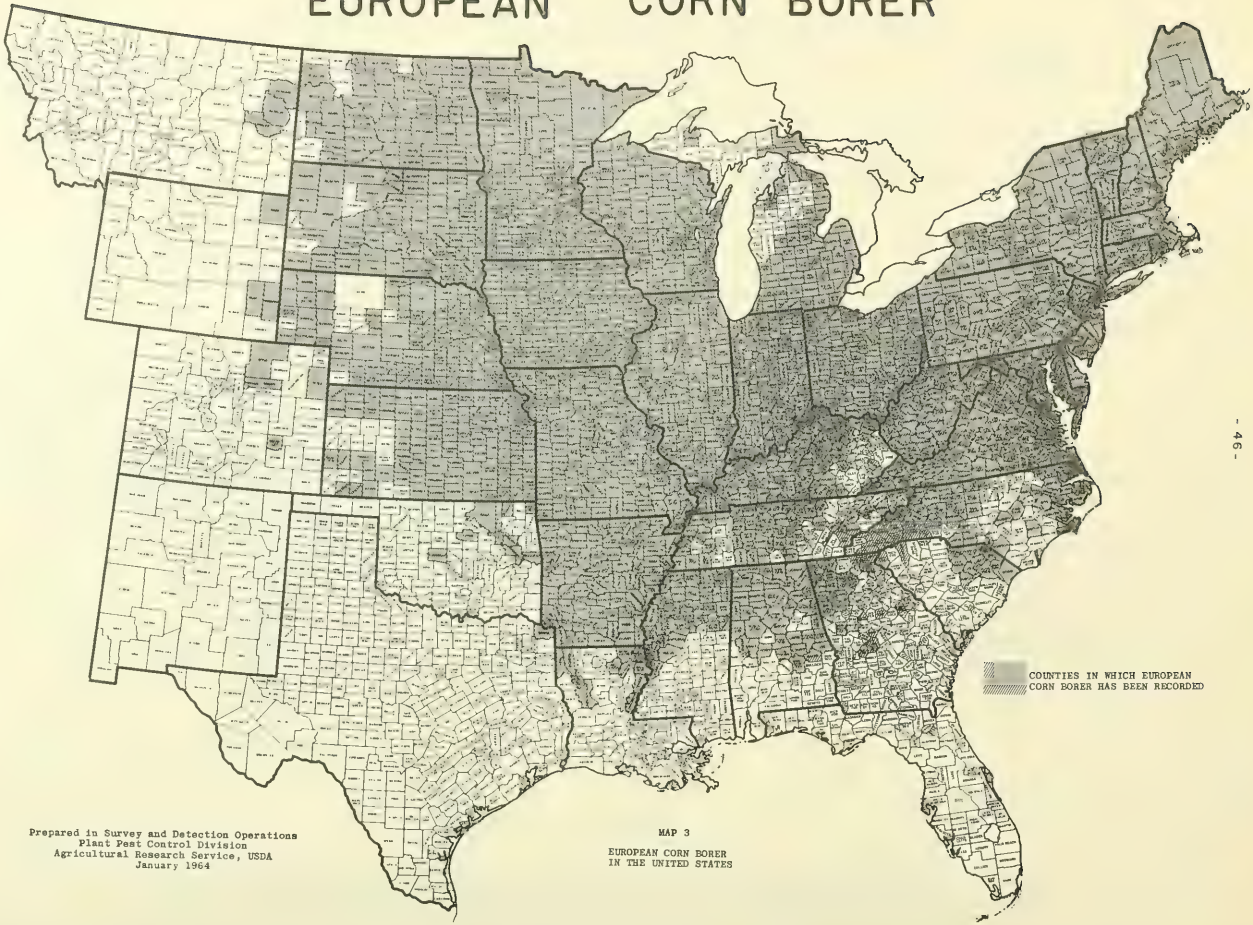
EUROPEAN CORN BORER ABUNDANCE
FALL 1963



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1964.

Map 2. No figures available for areas not shaded.

EUROPEAN CORN BORER



Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
January 1964

MAP 3

EUROPEAN CORN BORER
IN THE UNITED STATES

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 4 January 24, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volumne 14 January 24, 1964 Number 4

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

PEA APHID and SPOTTED ALFALFA APHID require some chemical controls in occasional fields of seedling alfalfa in northern Eddy County, New Mexico. (p. 49).

Varying populations of CARROT RUST FLY damaging carrot plantings in several areas of Humboldt County, California. Infestations now occur in several areas of county and are well established. (p. 50).

COMMON CATTLE GRUB heavy in yearling calves in Noble County, Oklahoma. (p. 51).

CORRECTIONS

See page 53.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 52). The Southwestern United States has undergone the longest known period of a screw-worm free status. The last specimens were known to have been collected on December 18, 1963.

Cooperative Survey Entomologists. (p. 55).

Insect Detection in the United States - 1963. (pp. 56-60).

Grasshopper Adult Survey - Fall 1963. (following last page).

Reports in this issue are for week ending January 17 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY

The Weather Bureau's 30-day outlook for mid-January to mid-February calls for temperatures to average above seasonal normals only in north-central portions of the country from the western Great Lakes to the Continental Divide. Below normal temperatures are predicted for the remainder of the Nation, except for near normal in a narrow band extending from the eastern Lakes through the Ohio Valley and Central Plains into the Pacific Northwest.

Precipitation is expected to be greater than normal in the southern half of the country and also in central portions of the Plains and western Plateau. Sub-normal amounts are indicated for the Northeast and Great Lakes, and near normal in areas not specified.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING JANUARY 20

Cold weather prevailed over most of the Nation at the beginning of the week. Many stations from Nevada to New England registered temperatures far below zero on Monday, January 13. A few examples are: Ely, Nevada, -14°; Roswell, New Mexico, -9°; Huron, South Dakota, -25°; and Caribou, Maine, -17°. Some stations in the Ohio River Valley registered their coldest temperatures on Tuesday the 14th. Columbus and Cincinnati, Ohio, recorded -14° and -15°, respectively, on Tuesday. The cold penetrated the Deep South and freezing temperatures reached the Gulf of Mexico, dropping to 16° at Tallahassee, Florida, and 27° at Tampa on Wednesday.

A warming trend at midweek brought the temperatures to near normal. The trend continued, and by Sunday, January 19, many stations registered their highest temperatures for the week. On Sunday afternoon, the temperature reached 41° at Bismark, North Dakota; 50° at Concordia, Kansas; 70° at Fort Worth, Texas; 75° at Laredo, Texas; and 75° at Key West, Fort Myers, and Miami, Florida.

Weekly averages of temperature were above normal over the Pacific Northwest and the northern Great Plains. Temperatures averaged below normal over the Great Basin, the central and southern Rocky Mountains, the southern Plains, and eastward and northward to the Atlantic Ocean and New England. Temperature departures ranged from +18° over northeastern Montana to -12° in central Florida and eastern Virginia.

Wide areas from the Continental Divide eastward to Minnesota and Arkansas received no precipitation of importance during the week. The north Pacific coast received more than 3 inches. More than an inch fell from eastern Texas eastward to the Atlantic. Precipitation also exceeded one inch along the Atlantic Coast from Maryland to southern New England.

The most severe storm of the winter ranged from the middle Mississippi and Ohio River Valleys eastward through most of the Atlantic States early in the week. Deep drifts blocked roads from Illinois eastward and numerous schools and business establishments were closed on Tuesday and Wednesday. The Weather Bureau issued heavy snow and hazardous driving warnings through much of the Ohio River Valley, for Tennessee and for the Atlantic States. Another storm at midweek dumped snow, sleet and freezing rain over northeast Texas, southern Arkansas, Tennessee and northern and central Mississippi. Three intense storms moved inland in the Pacific Northwest. These brought several inches of rain along the coast and daily snowfall amounts of 15 to 24 inches to some mountainous locations. Winds in western Washington reached 50 to 75 m.p.h., on Sunday, January 19. These winter storms curtailed some outside activities. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - OKLAHOMA - Cold weather continues to keep populations at low level. Counts fewer than 20 per linear foot in Perkins area, Payne County. (Okla. Coop. Sur.). NEW MEXICO - Populations remain light in Chaves and Eddy Counties on small grains. (N. M. Coop. Rpt.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Mostly light, spotted infestations in alfalfa in northern Eddy County. Occasional fields of seedling alfalfa require chemical treatment. (N. M. Coop. Rpt.). ARIZONA - Populations continue light in alfalfa fields of Yuma and Maricopa Counties. Ranged 20-25 per 100 sweeps. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Mostly light, spotted infestations in alfalfa in northern Eddy County. Occasional fields of seedling alfalfa required chemical treatment. (N. M. Coop. Rpt.). OKLAHOMA - Only light numbers found in localized area on overwintering alfalfa in Wagoner County. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Light populations found in alfalfa fields of Yuma County; averaged 10 per 100 sweeps. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Slight increase noted in alfalfa fields of Yuma and Maricopa Counties. Ranged 10-15 per 100 sweeps. (Ariz. Coop. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Taken on fruit and stem of sweet corn at Port Mayaca, Martin County. (Smith, Campbell, Jan. 8).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Adults present in or near alfalfa in Yuma and Maricopa Counties. Larvae average 15 per 100 sweeps. (Ariz. Coop. Sur.). CALIFORNIA - Larvae light on alfalfa in Clovis, Fresno County. (Cal. Coop. Rpt.).

A PYRAUSTID MOTH (Udea profundalis) - CALIFORNIA - Larvae light on alfalfa in Kerman, Fresno County. (Cal. Coop. Rpt.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Few larvae found in alfalfa fields of Yuma County. Egg masses numerous; averaged 12-14 per 100 stems. (Ariz. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - TEXAS - Infestations of what is probably this species reported on flax in Bee County; cutting flax roots in some localized fields. (Reyes).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Few larvae noted in cocoons under bark of apple trees checked in Sandoval County. (N. M. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Medium locally on apple in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - ALABAMA - Light on isolated peach trees in Lee County. (McQueen).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Continues very numerous in pecan husks on ground in Lee and Macon Counties; survived recent 10°F. cold, sleet and ice in central counties. (McQueen).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Numerous eggs on all trees examined in Lee and Macon Counties; 5-30 eggs per inch on many twigs, branches and stems. Cold weather (10°F.) apparently without effect on survival. (McQueen).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Considerable numbers of eggs and adults (mostly eggs) noted on pecan trees examined in Lee and Macon Counties. (McQueen).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Medium on citrus nursery stock in Lindsay, Tulare County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Medium on citrus nursery stock in Lindsay, Tulare County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Aspidiotus lataniae) - CALIFORNIA - Adults heavy on bark and trunk of grapevines in Oceanside, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CARROT RUST FLY (Psila rosae) - CALIFORNIA - Varying populations damaging carrot plantings in Eureka, Fortuna, Arcata and Ferndale, Humboldt County. This species discovered in dooryard plantings of carrots in Eureka. Infestations now occur in several areas in county and are well established. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light to moderate in vegetable fields in Yuma County. Infestations very sporadic in county; ranged 75-100 per 10 plants. (Ariz. Coop. Sur.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Adults and eggs observed on strawberries in Lee, Macon and Montgomery Counties; ranged light to extremely heavy on strawberries. Apparently overwintering on other plants but strawberries show considerable isolated damage. (McQueen).

COTTON INSECTS

WEEVILS (Anthonomus spp.) - ARIZONA - Live specimens continue to be found in bolls of cotton near Wellton-Mohawk area, Yuma County. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE APHIDS - ALABAMA - Both Eulachnus sp. and Cinara sp. reported in December continue present in extremely high numbers on pines throughout central area. Eulachnus sp. appears more populous and, on isolated trees, heavy prior to first freeze of season. Only occasional specimen seen in flight. Adults of Hippodamia convergens and Coccinella sanguinea continue feeding but in smaller numbers. (McQueen).

WOOLLY ALDER APHID (Prociphilus tessellatus) - ALABAMA - Eggs numerous on stems and branches of hazel alder along stream banks and ponds where adult population reported heavy in October and November in Lee and Macon Counties. (McQueen).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW MEXICO - Light to moderate on elm trees in Sandoval and Bernalillo Counties. (N. M. Coop. Rpt.).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Infestations continue to be found on many ornamentals in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

APHIDS - CALIFORNIA - Stegophylla quercicola medium on Quercus agrifolia nursery stock in San Gabriel, Los Angeles County. Thoracaphis umbellulariae infesting

street bay trees in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A PSYLLID (Paratrioza maculipennis) - CALIFORNIA - Medium on Solanum sp. in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Medium on Mugho pine and white spruce in Greenville, Plumas County. (Cal. Coop. Rpt.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Heavy on Ficus retusa nursery stock in South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

Coccids in Florida - Aspidiotus osborni light on Magnolia soulangeana at De Leon Springs, Volusia County, (Roberts, Dec. 30); A. jugulansregiae taken on Camellia japonica at Tallahassee, Leon County, (Bingaman, Hill, Dec. 6); Saissetia hemisphaerica caused light damage to stem of Thunbergia erecta at Pembroke, Polk County, (Snell, Peterson, Jan 6); Pseudaonidia paeoniae taken on stem of Ilex sp. at Fellowship, Marion County, (Graham, Dec. 30); and Phenacaspis pinifoliae caused light damage to leaves of Abies balsamea at Clermont, Lake County, (Henderson, Brown, Dec. 16). All above are new host records for the Florida Division of Plant Industry; last named host imported Christmas trees from unknown origin. (Fla. Coop. Sur.). Asterolecanium bambusae moderately damaged clum of bamboo at Pembroke, Polk County, (Snell, Peterson, Jan. 6); Parlatoria pergandii severely damaged viburnum at St. Petersburg, Pinellas County, (Bingaman, Jan. 8); Fiorina theae caused severe damage to Chinese holly and dahoon holly at Holly Hill, Volusia County, (Pott, Jan. 10); and Cerococcus sp. caused light to severe damage to stem of hibiscus and acalypha at North Miami, Dade County, (Hickman, Jan. 8, 9).

SPIDER MITES - ALABAMA - Adults and eggs of Tetranychus spp. observed in Lee, Macon and Montgomery Counties; light to extremely heavy on ornamentals, including azaleas, pines, hollies, cherry-laurels, privets and magnolias. Most injury apparent on cherry-laurel and azalea. Mites appear to be overwintering on other plants, but these show considerable isolated damage. (McQueen). CALIFORNIA - Eotetranychus lewisi heavy on poinsettia in Arlington, Riverside County, and T. telarius heavy on Magnolia soulangeana at Colma, San Mateo County. (Cal.Coop.Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - TEXAS - Low temperatures reduced annoyance prevalent several weeks ago in Jefferson County; however, considerable adult activity may be observed in sheltered locations on sunny days. Most prevalent species, Culex sp., probably salinarius. Some Aedes sollicitans and Culiseta inorata present. Occasional Anopheles sp. noted. (Tex. Coop. Rpt.). FLORIDA - Culiseta inorata taken, biting man on arm 5 miles west of Bradenton, Manatee County. This is a fairly common cool-weather species in State, but reports of its biting man in Florida are relatively scarce. (Mead, Jan. 11).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Heavy infestation noted on group of yearling calves in Noble County (north central) with counts averaging 22 per head. Counts range 1-10 per head on 50 percent of cattle checked in Bryan County (south central). Light counts of 10 per 30 head observed in Payne County cattle. (Okla. Coop. Sur.).

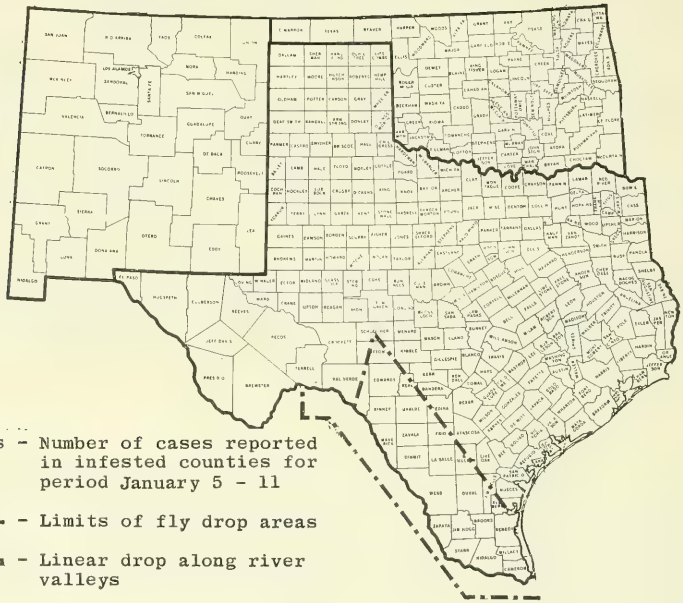
HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Bryan County (south central). (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Moderate to heavy on cattle in Blaine (west central) and Bryan (south central) Counties. (Okla. Coop. Sur.). UTAH - Numerous on some animals in western Box Elder County. (Knowlton).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Adults collected in home in Tulsa County. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

The Southwestern United States has undergone the longest known period of a screw-worm free status. Specimens from one case of myiasis were identified during this period; however, the larvae were believed to have been collected in November 1963. The last specimens were known to be collected on December 18, 1963; therefore, the Southwest has been free for almost a month. Flies released during the period January 5 - 11 reflect the reduced production rate for the first time. A total of slightly more than 78 million sterile flies was released during this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period January 5 - 11

-·-·- - Limits of fly drop areas

▪▪▪▪▪▪▪▪▪▪ - Linear drop along river valleys

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Light counts noted on cattle in Payne County. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - OKLAHOMA - Average counts of 4 per ear noted on yearling steers in Payne County. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Larvae heavy in stored walnut meats in home in Chico, Butte County, and in shelled almonds in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

CIGARETTE BEETLE (Lasioderma serricorne) - CALIFORNIA - Heavy in cayenne pepper in home in Riverside, Riverside County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Causing nuisance by entering home at Baltimore. (U. Md., Ent. Dept.). OKLAHOMA - Activity in Stillwater area, Payne County, causing some concern to homeowners. (Okla. Coop. Sur.). UTAH - Invading home in Salt Lake City, Salt Lake County. (Knowlton).

A SPRINGTAIL (Entomobrya unostrigata) - CALIFORNIA - Heavy numbers invading school building in Santee, San Diego County. (Cal. Coop. Rpt.).

AMERICAN COCKROACH (Periplaneta americana) - MARYLAND - Infesting buildings on 2 properties in Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

Stored-product Insects in Alabama - Adults of Dermestes maculatus and Alphitobius laevigatus and larvae of Attagenus piceus collected in smaller numbers than anticipated in warehouse in Mobile County. (Seibels, Wallace). Numerous larvae of Anthrenus spp. collected in recent surveys in import cotton cloth warehouse in Lee County; collected in trash piles, waste lint and bagging. (Barwood, Wise, Harris).

BEAN WEEVIL (Acanthoscelides obtectus) - CALIFORNIA - Adults heavy in packaged beans in market in Diamond Springs, El Dorado County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Additional collection made in Polk County; taken north of Lake Wales on shoulder of U. S. Highway 27. (Richards, Jan. 9).

A GELECHIID MOTH (Symmoca signatella) - CALIFORNIA - Larvae medium on catalpa trees in San Bernardino, San Bernardino County; this is a scavenger species. (Cal. Coop. Rpt.).

A MITE - TEXAS - Undetermined species damaging earthworm beds in Cherokee County. Several reports of this nature submitted during last few weeks. (McKay).

CORRECTIONS

CEIR 14(1):7 - LADY BEETLES - ALABAMA - Delete last statement: "Apparently feeding on mites or mite eggs." Correct spelling is Psyllobora vigintimaculata. This is a phytophagus species that feeds on conidia of fungi.

CEIR 14(2):12 - HICKORY SHUCKWORM (Laspeyresia caryana) should read PECAN WEEVIL (Curculio caryae).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
SOUTH CAROLINA Charleston 1/6-12	30-68	5.84	BL	3					7	0	0	0					0	0	0	0	7		0	
TEXAS Brownsville 1/8-13			4 BL	69			60		223		32	278					265	49		1	125		4	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet - garden beet and/or sugar beet; cole - cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

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Nevada	Robert C. Bechtel, Department of Agriculture, P. O. Box 1209, Reno 89504
New Mexico	Modified Agreement
North Carolina	D. A. Mount, Department of Entomology, Box 5215, State College Station, Raleigh
North Dakota	Richard Frye, Office of State Entomologist, State College Station, Fargo
Ohio	William F. Lyon, Zoology-Entomology Department, Ohio Agr. Experiment Station, Wooster
Oklahoma	Sidney E. Kunz, Department of Entomology, Oklahoma State University, Stillwater 74075
Oregon	Vacancy
Rhode Island	Modified Agreement
South Dakota	Sherwin Hintz, Zoology-Entomology Department, South Dakota State College, College Station
Texas	M. V. Meisch, Department of Entomology, Texas A & M College, College Station
Virginia	W. A. Tarpley, Department of Entomology, Virginia Polytechnic Institute, Blacksburg
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Wyoming	W. D. Marks, Plant Science Division, University of Wyoming, Box 3354, University Station Laramie 82071

Revised January 24, 1964

FIRST UNITED STATES REPORT

Species	Host(s)	State (County) Collection Date	CEIR Vol. 13 Page No.
Aleurotrachelus jelinekii (Frauenfeld) (a whitefly)	Viburnum sp.	California (Tulare) 2/25/63	365
Dialeurodes kirkaldyi (Kotinsky) (a whitefly)	Morinda citrifolia	Florida (Monroe) 11/8/62	498, 620
Ectopsocus maindroni Badonnel (a psocid)	Collected in residence	Hawaii (Honolulu) 10/5/63 1/	1324
Rhagoletotrypeta sp. (a fruit fly)	sticky board traps	New Jersey (Camden) 8/2/62	281

FIRST STATE REPORT

Aceria tulipae (Keifer) (wheat curl mite)	orchardgrass	Arkansas (Washington) July 1963	1292
Aculus schlechtendali (Nalepa) (apple rust mite)	apple trees	Maine (Waldo) 7/18/63	1110
Adistemia watsoni Wollaston (a lathridiid beetle)	collected in residence	Delaware (New Castle) 4/9/63	472
Aleuroplatus gelatinosus (Cockerell) (a whitefly	evergreen oaks	Utah (Washington) 4/16/63	726
Amphimallon majalis (Razoumowsky) (European chafer)	collected in blacklight trap	Pennsylvania (Erie) 6/26/63 2/	874
Argiope amoena Koch (an orb weaver spider)	--------	Hawaii (Honolulu) 1/20/63	86, 1223
Bomolocha abalienalis (Walker) (a noctuid moth)	--------	Delaware (New Castle) 7/10/63	1188
Brochymena quadripustulata (Fabricius) (a stink bug)	--------	Hawaii (Honolulu) October ?/62	17

1/ Previously intercepted at Honolulu.

2/ Collection date on page 874 in error.

First State Report (cont'd)

Species	Host(s)	State (County) Collection Date	CEIR Vol. 13 Page No.
Bucculatrix tridenticola Braun (a lyonetiid moth)	sagebrush	California (Lassen) 7/12/63	1396
Clavaspis herculeana (Doane & Hadden) (a diaspid scale insect)	Plumeria sp.	Hawaii (Honolulu) 5/18/63	1416
Crambus elegans Clemens (a grass moth)	-------	Delaware (New Castle) 6/17/63	1188
Cyrtepistomus castaneus (Roelofs) (Asiatic oak weevil)	Collected in residence	Indiana (Jennings, Jackson) 9/24/62	305
	oak	Ohio (Tuscarawas) 8/5/63	960
	--------	Tennessee (Coffee) Nov. 1962	1024
Derocrepis erythropus (Melsheimer) (a leaf beetle)	black locust	Delaware (New Castle) 6/12/63	867
Diabrotica cristata Harris (a leaf beetle)	--------	Alabama (Winston) 6/26-27/63	1301
Dicymolomia julianalis (Walker) (a pyralid moth)	--------	Delaware (Kent) 5/27-31/63	694
Dioryctria zimmermani (Grote) (Zimmerman pine moth)	Scotch pine	West Virginia (Boone) 6/25/63	1149
Dysmicoccus lasii (Cockerell) (a mealybug)	Borreria terminalis	Florida (Dade) 7/28/61	106
Eleodes suturalis (Say) (a darkling beetle)	--------	California (Stanislaus) 8/9/63	966
Euclyptus rutilus Fall (a weevil)	--------	Utah (Box Elder) 5/22/62	324
Fissuraspis ulmi (Hoke) (an armored scale)	American elm	Florida (Volusia) 5/2/63	656
Forficula auricularia Linnaeus (European earwig)	Collected in residence	Michigan (Ingham) 8/1/63	1059
Heliothis phloxiphaga form luteitinctus Grote (a noctuid moth)	Collected in blacklight trap	Delaware (New Castle) 8/14/62	624

First State Report (cont'd)

Species	Host(s)	State (County) Collection Date	CEIR Vol. 13 Page No.
Hexarthrum ulkei Horn (a weevil)	old pine flooring in home	Colorado (Denver) 7/19/63	497
Homadaula albizziae Clarke (mimosa webworm)	Mimosa, honeylocust	Oklahoma (Tulsa) 7/30/63	924
Hypera postica (Gyllenhal) (alfalfa weevil)	alfalfa	Arkansas (Mississippi) 5/6/63	541
	alfalfa	Mississippi (Oktibbeha) April 1963	635
	alfalfa	New Hampshire (Rockingham) 5/21/63	601
Hypogeocoris imperialis (Distant) (a big-eyed bug)	--------	Arkansas (Conway) 6/15/63	932
Incisitermes minor (Hagen) (western drywood termite)	wooden ceiling	Ohio (Greene) 6/18/63	1087
	Fraxinus velutina (partly dead)	Nevada (Clark) 4/28/63	533
	hardwood furniture	Texas (Bexar) Jan. 1963	119
Janus integer (Norton) (currant stem girdler)	Wilder red currants	Washington (Yakima) 5/24/63	713
Lopidea confluenta (Say) (a mirid)	collected in blacklight trap	Delaware (Kent) 6/19/62	624
Megacheuma brevipennis (LeConte) (a long-horned beetle)	--------	Oregon (Harney) 1962	660
Melanaspis aliena (Newstead) (an armored scale)	cattleya orchid	Florida (Broward) 2/5/58	620
Microdon aurulentus (Fabricius) (a flower fly)	collected in Steiner trap	Florida (De Soto) 4/4/63	440
Microparsus olivei Smith and Tr. (an aphid)	Desmodium canadensis	Pennsylvania (Centre) 7/20/63	882
Myzocallis frisoni Boudreaux & Tissot (an aphid)	oak	Maryland (Baltimore) 6/27/62	466
Myzus ornatus Laing (an aphid)	Coleus sp.	Pennsylvania (Centre) Mar. 1963	436

First State Report (cont'd)

Species	Host(s)	State (County) Collection Date	CEIR Vol. 13 Page No.
Myzus sensoriatus Mason (an aphid)	Hypericum sp.	Pennsylvania (Centre) Apr. 1963	436
Neodiprion taedae linearis Ross (a pine sawfly)	loblolly pine	Mississippi (Winston) Mar. 1962	254
Neophyllaphis araucariae Tak. 1/ (an aphid)	Araucaria excelsa	Florida (Volusia) 11/28/62	1334
Oestrus ovis Linnaeus (sheep bot fly)	reared out in laboratory	Delaware (New Castle) 8/29-30/63	1087
Onthophagus sagittarius (Fabricius) (a scarab)	collected in cow dung	Hawaii (Honolulu) 7/24/63	1381
Ornithonyssus bursa (Berlese) (tropical fowl mite)	chickens	Delaware (Sussex) 12/2/63	1398
Oulema melanopa (Linnaeus) (cereal leaf beetle)	oats	Ohio (Williams) 6/3/63	635
Phyllocoptruta oleivora (Ashmead) (citrus rust mite)	lemon	Arizona (Yuma) 11/6/63	1363
Platytylellus fraternus Knight (a mirid)	collected in blacklight trap	Delaware (Kent) 6/19/62	624
Pseudococcus importatus McKenzie (a mealybug)	cattleya and oncidium orchids	California (Los Angeles) Apr. 1963	620
Psilocorsis quercicella Clemens (an oecophorid moth)	oak	South Carolina (Anderson) 10/16/62	1214
Rhagoletis completa Cresson (walnut husk fly)	--------	Oregon (Jackson) Oct. 1963	1209
Rhizoecus cacticans (Hambleton) (a ground mealybug)	Neoregelia sp.	Florida (Orange) 8/1/61	620
Rhizoecus leucosomus Cockerell (a ground mealybug)	Mesembryanthemum sp.	Florida (Seminole) 2/15/63	436
Rhizoecus pritchardi McKenzie (a mealybug)	African-violet	Pennsylvania (Montgomery) 2/8/63	493

1/ Also first record on continental United States; previously reported in Hawaii.

First State Report (cont'd)

Species	Host(s)	State (County) Collection Date	CEIR Vol. 13 Page No.
Spanogonicus albofasciatus (Reuter) (a fleahopper)	cotton	Arkansas (Jefferson) 9/28/63	1243
Sphenophorus cicatristriatus Fahraeus (a billbug)	bluegrass	Washington (Benton) 7/3/63	983
Systena frontalis (Fabricius) (a flea beetle)	horseradish	Delaware (Kent) 7/10/63	861
Texananus gladius DeLong (a leafhopper)	African-violet	California (Los Angeles) 10/2/62	141
Thyridopteryx ephemeraeformis (Haworth) (bagworm)	juniper	Colorado (Larimer) 8/9/63	1024
Xylobiops basilaris (Say) (a bostrichid)	mimosa	Delaware (New Castle) 5/16/63	619
Zeadiatraea grandiosella (Dyar) (southwestern corn borer)	corn	Alabama (Pickens) fall 1962	1262
	corn	Illinois (Alexander) 3/29/63	391

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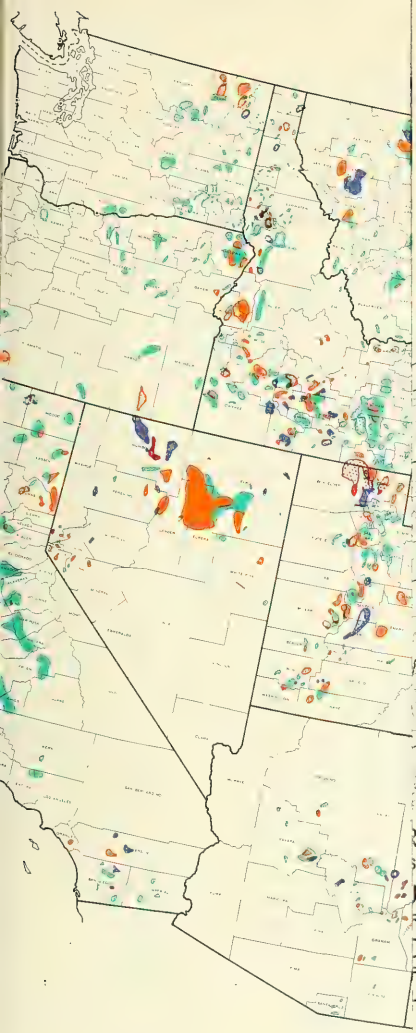

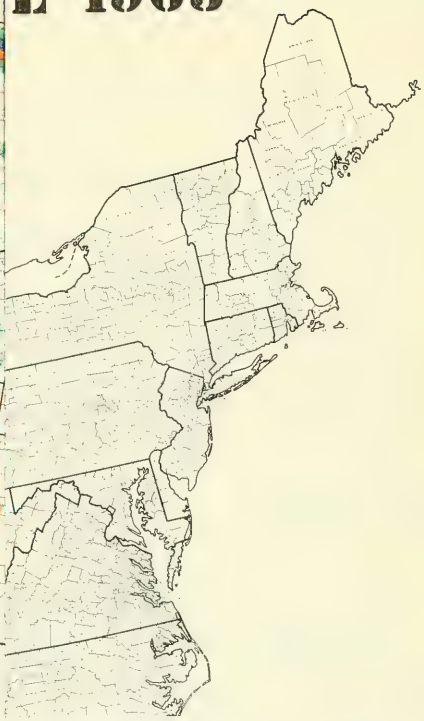

RY ABUNDANT 28 OR MORE GRASSHOPPERS
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COLORS - RANGELAND INFESTATIONS
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PREPARED IN PPC, ARS, USDA
DECEMBER 1, 1963

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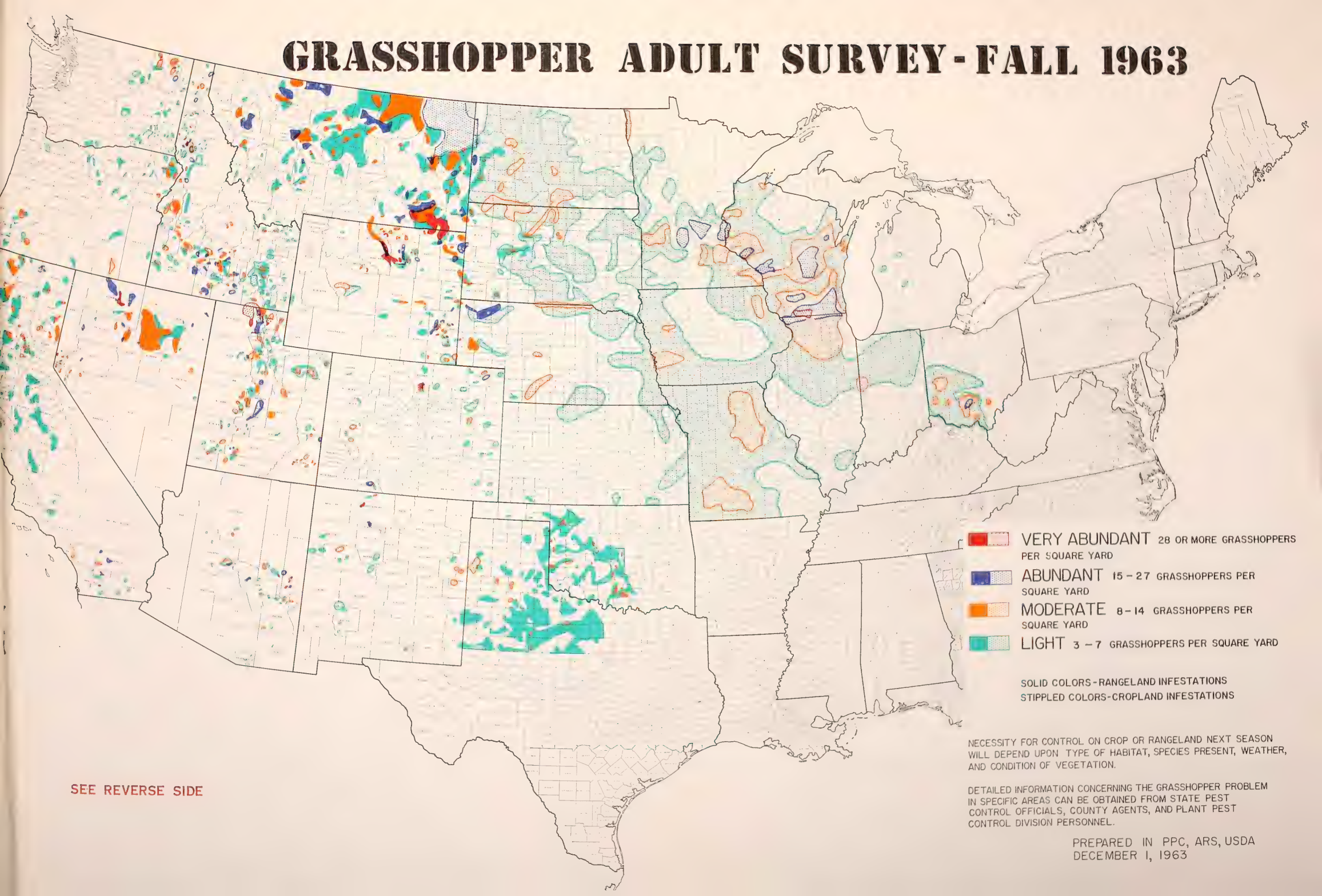
GRASSHOPPER ADULT SURVEY - FALL 1963



NECESSITY FOR CONTROL ON CROP OR RANGELAND NEXT SEASON WILL DEPEND UPON TYPE OF HABITAT, SPECIES PRESENT, WEATHER, AND CONDITION OF VEGETATION.

DETAILED INFORMATION CONCERNING THE GRASSHOPPER PROBLEM IN SPECIFIC AREAS CAN BE OBTAINED FROM STATE PEST CONTROL OFFICIALS, COUNTY AGENTS, AND PLANT PEST CONTROL DIVISION PERSONNEL.

SEE REVERSE SIDE

PREPARED IN PPC, ARS, USDA
DECEMBER 1, 1963

S DEPARTMENT OF AGRICULTURE
ULTURAL RESEARCH SERVICE
NT PEST CONTROL DIVISION

ırveys made during the late summer and fall of 1963. The survey reveals where and how many grass-
'or 1964. Nymphal surveys, made in the spring, determine population densities, and indicate those

o be about the same as those which were indicated in the 1962 fall survey. Control on those lands
State personnel. The infested range areas, shown on the map in solid colors (orange, blue and red
:as on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

IFESTATIONS – ACREAGE BY REGIONS, FALL 1963

ions or Above – Orange, Blue and Red)

'AL :ES	REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES
		PRIVATE AND STATE	PUBLIC DOMAIN	
ı,000	Nevada	31,600	302,640	334,240
),760	New Mexico	3,600	900	4,500
,820	Oregon	36,050	7,250	43,300
	Utah	130,680	407,620	538,300
	Washington	22,000	– –	22,000
,800	Wyoming	817,000	160,500	977,500
ı,850				
',860	SOUTHERN			
,000	Oklahoma	123,280	– –	123,280
',000	Texas	63,800	– –	63,800

ɜricultural Research Service, in cooperation with various State agencies concerned.

GPO 968-055

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PLANT PEST CONTROL DIVISION

TO COOPERATORS

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1963. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1964. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1964.

The infestations in croplands, shown on the map in stippling, appear to be about the same as those which were indicated in the 1962 fall survey. Control on those lands will be handled by the farmers with technical assistance from Division and State personnel. The infested range areas, shown on the map in solid colors (orange, blue and red only), total 10,014,010 acres in 16 Western and Midwestern States. Shaded areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS – ACREAGE BY REGIONS, FALL 1963

(Moderate Populations or Above – Orange, Blue and Red)

REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES
	PRIVATE AND STATE	PUBLIC DOMAIN			PRIVATE AND STATE	PUBLIC DOMAIN	
CENTRAL							
Nebraska	465,000	65,000	530,000	Nevada	31,600	302,640	334,240
No. Dakota	3,480	47,280	50,760	New Mexico	3,600	900	4,500
So. Dakota	118,060	43,760	161,820	Oregon	36,050	7,250	43,300
				Utah	130,680	407,620	538,300
WESTERN				Washington	22,000	– –	22,000
Arizona	32,500	49,300	81,800	Wyoming	817,000	160,500	977,500
California	296,750	14,100	310,850				
Colorado	34,100	5,760	39,860	SOUTHERN			
Idaho	190,000	755,000	945,000	Oklahoma	123,280	– –	123,280
Montana	4,060,000	1,727,000	5,787,000	Texas	63,800	– –	63,800

The survey was planned and performed by the Plant Pest Control Division, Agricultural Research Service, in cooperation with various State agencies concerned.

GPO 968-055

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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VOL. 14 No. 5 January 31, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 January 31, 1964 Number 5

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRAIN APHIDS continue noneconomic to light in New Mexico, Oklahoma, Texas and Arkansas. Adults of a WEEVIL (Hypera brunneipennis) averaged 2 per 100 sweeps on alfalfa in Yuma County, Arizona, with numerous egg clusters present. (p. 63). Light to moderate WINTER GRAIN MITE infestations widespread in Kaufman County, Texas, oat fields, with some controls being applied. (p. 64).

PEACH TREE BORER continues noticeable on peaches and plums in central part of Alabama. (p. 64). PURPLE SCALE, GLOVER SCALE, CHAFF SCALE and YELLOW SCALE are above average abundance in Florida citrus, and WHITEFLIES continue in high range and far above normal level as of the end of December. (p. 65).

POTATO TUBERWORM adults continue to be collected by blacklight traps in Monroe County, Michigan, potato storage. (p. 69).

DETECTION

A CONIFER SAWFLY (Neodiprion abietis complex) found in Big Bear Creek drainage area of San Bernardino National Forest in California; first record of occurrence in this area. (p. 70). IMPORTED FIRE ANT (Solenopsis saevissima richteri) recorded for first time in Lawrence County, Alabama; Randolph County, Georgia; and in Pontotoc County, Mississippi. (p. 70).

CORRECTIONS

See page 70.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 68).

Reports in this issue are for week ending January 24 unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 27

Rain fell over most of the eastern third of the Nation on Monday, January 20. Boston, Massachusetts, and New York, New York, received more than an inch. Smaller amounts fell over most other areas. A tornado near Harpersville, Alabama, killed 10 people, blew down power lines, and uprooted trees. Another storm battered the Pacific coast. It brought rains to the coastal areas and scattered snow flurries to the mountains. San Francisco received more than 2 inches of rain on Monday. Sunny weather prevailed over most of the mid-section of the country.

As the Pacific storm moved inland, it brought heavy snow to the mountainous areas and thunderstorms broke out over central California. Hail fell at San Francisco and Oakland, California. Cold air from Canada spread into Montana and the Dakotas. Temperatures dropped to below zero. The highest temperature at Cutbank, Montana, on Wednesday afternoon was 3° below zero. On the same afternoon the mercury climbed to 70° at St. Louis, as mild sunny weather continued over the eastern half of the Nation.

On Thursday morning, the cold front extended from Lake Michigan to Texas. Arctic air spread southward behind the front and warm moist gulf air flowed northward east of the front. Snow fell over the northern Great Plains, sleet and freezing rain fell in Minnesota and western Wisconsin, thunderstorms developed over parts of Iowa, Missouri, and Illinois, and fog occurred over the lower Mississippi River Valley. Tornadoes were seen over several central and southern States as snow squalls and gale force winds continued over the Great Lakes region.

Temperatures averaged below normal over California and most of the Southwest and above normal over most of the rest of the Nation. Over much of the eastern two-thirds of the country, it was the warmest week since November. Temperature departures ranged from -4° at Red Bluff, California, to +16° at Tulsa, Oklahoma. Temperatures over much of the central and northeastern areas averaged more than 10° above normal. Most of the snow cover melted and the ground thawed in some areas.

Rainfall along the Pacific coast, from San Francisco, California, northward ranged from 1.50 inches to more than 8 inches. The middle gulf area, the Appalachians, and most of the Northeast received more than an inch of rain. Elsewhere, rainfall totals were mostly less than 1 inch. Many areas from Nebraska southward to central Texas received no rain or only light sprinkles or snow flurries. Heavy snow fell in the Sierra and Cascade Mountains and the snow line in the Cascades in Washington was 1,000 feet above sea level at the end of the week. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Populations still very light in alfalfa fields of Yuma County; ranged 2-10 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Light counts noted on overwintering alfalfa in Choctaw County; averaged 8 per square foot of crown. (Okla. Coop. Sur.). ARKANSAS - Surveys in northwest, upper Arkansas River Valley, southeast and west central areas negative. (Ark. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Light in a few young alfalfa fields in southern Eddy County. (N. M. Coop. Rpt.). OKLAHOMA - Occasional to light counts noted on overwintering alfalfa in Kay and Kingfisher Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys in northwest, upper Arkansas River Valley, southeast and east central areas negative. (Ark. Ins. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light counts averaged fewer than 5 per linear foot in fields checked in Kay, Noble, Garfield, Kiowa and Tillman Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys in northwest, upper Arkansas River Valley, southeast and east central areas negative. (Ark. Ins. Sur.).

GREENBUG (Schizaphis graminum) - TEXAS - Only one specimen found in 7 Kaufman County oat fields. (Turney). OKLAHOMA - Generally noneconomic populations present in all fields checked with no sign of increase over previous week. Counts fewer than 10 per linear foot in Kay, Noble, Garfield, Kingfisher, Harmon and Kiowa Counties. Fewer than 20 per linear foot continue on test plots in Payne County area. None noted in Muskogee and Mayes Counties, east central. (Okla. Coop. Sur.). ARKANSAS - Surveys in northwest, upper Arkansas River Valley, southeast and east central areas negative. (Ark. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light in barley fields near Malaga, Eddy County. Zero degree weather reduced activity considerably in Chaves and Eddy Counties. (N. M. Coop. Rpt.). OKLAHOMA - Light counts (2-6 per linear foot) noted on small grains in Garfield and Kingfisher Counties. (Okla. Cop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light counts (0-5 per linear foot) observed in surveys conducted in Garfield, Kingfisher, Tillman and Harmon Counties. None noted in Kay and Noble Counties. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Occasional specimen picked up on warm days on small grain. (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults averaged 5-10 per 100 sweeps in alfalfa fields in Yuma County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Adults averaged 9 per 100 sweeps in Yuma Mesa alfalfa fields, Yuma County. (Ariz. Coop. Sur.). FLORIDA - One adult taken in 400 sweeps in Hairy Peruvian alfalfa on January 21 following subfreezing nights on January 14-16. (Mead).

LEAFHOPPERS - ALABAMA - Several species observed in sizeable overwintering numbers in grass stubble areas of pastures and orchards in Lee County; 5-8 per sweep not uncommon. Active at 70°F. (McQueen). CALIFORNIA - Draeculacephala minerva medium in alfalfa in Clovis, Fresno County. (Cal. Coop. Rpt.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Adults averaged 2 per 100 sweeps in alfalfa fields of Yuma County; numerous egg clusters found. (Ariz. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Checks made in field of corn in Bryan County showed 100 percent infestation with 20 percent of larvae dead and 80 percent alive. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae averaged 5 per 100 sweeps in alfalfa fields of Yuma County. (Ariz. Coop. Sur.). FLORIDA - One larva taken in 400 sweeps in Hairy Peruvian alfalfa on January 21 following subfreezing nights of January 14-16. (Mead).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae light on alfalfa in Clovis, Fresno County. (Cal. Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Widespread, light to moderate infestations reported from Kaufman County oat fields. Some fields received control measures, but infestations generally light. Surveys made in 18-30 degree weather. (Turney).

FRUIT INSECTS

PEACH TREE BORER (Sanninoidea exitiosa) ALABAMA - Continues noticeable pest of peaches and plums in central area. Large amounts of gum at bases of trees in Lee and Clay Counties. Larvae 0.5 inch present beneath bark. (Owens et al.).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severely damaged stem of pear at Macclenny, Baker County. (Collins, Jan. 16).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severely damaging stem and bark of persimmon and peach at Holly Hill, Volusia County. (Holley, Pott, Jan. 16).

BLACK CITRUS APHID (Toxoptera aurantii) - FLORIDA - Severely damaged leaves of loquat at Lake Helen, Volusia County. (Roberts, Jan. 16).

MELON APHID (Aphis gossypii) - ARIZONA - Moderate on citrus plants in greenhouses in Yuma County. (Ariz. Coop. Sur.).

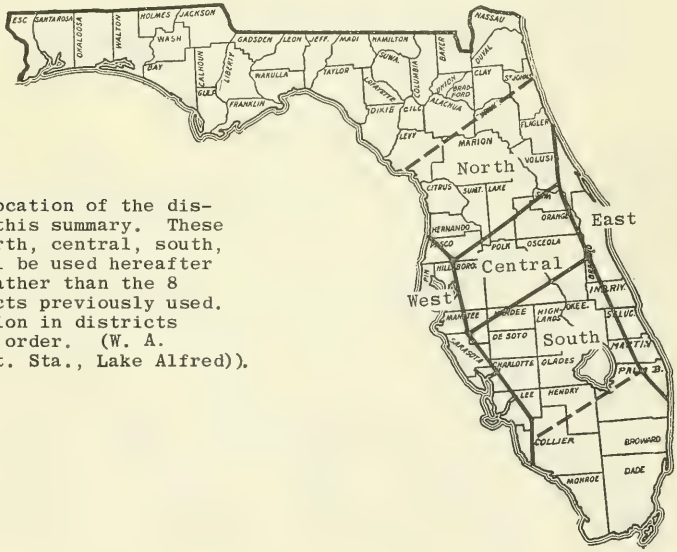
MULBERRY WHITEFLY (Tetraleurodes mori) - CALIFORNIA - Heavy on a few sweet orange trees in Long Beach, Los Angeles County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Light infestations found at Xyatel and Carrillo Puerto in south central part of Territory of Quintana Roo. Infestations at Chunhuhub and at Kilometer 50, Merida-Chetumal highway in Yucatan treated. Report on parasitism and degree of infestations in 7 states and 1 territory indicated necessity of release of parasites on 24 properties in 4 states and 1 territory and possibility of captures of parasites on 4 properties. Inspection of 23,197 citrus including 883 nursery trees on 128 properties in Municipios of Mainero, Hidalgo and Guemez show 10 infested trees on 4 properties. No infestation found in Municipio Mainero which borders chemical control zone in Nuevo Leon. Chemical Control Zone - Total of 45,035 citrus trees inspected on 645 properties in States of Nuevo Leon, Tamaulipas, Sonora and Baja California; results negative. Third spray treatment applied to 533 trees on 5 properties in Municipio Villa de Santiago, Nuevo Leon. (PPC, Mex. Reg., Dec. Rpt.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Becoming serious problem on citrus nursery stock in greenhouses at Yuma, Yuma County. (Ariz. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 7,844 trap inspections made of 1,934 traps on 977 properties in states of Baja California and Sonora. Results negative. Seventh spray application completed in Municipio Tijuana, Baja California; second and third applications in Colonia Pedrera and first and second applications in Colonia Independencia made. Total of 2,136 trees sprayed on 499 peoperties. Weekly inspection of 25 traps in Municipio Linares, Hualahuises and Iturbide, Nuevo Leon made; results negative. (PPC, Mex. Reg., Dec. Rpt.).

Citrus Insect Situation in Florida - Mid-January - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 57 percent of groves (norm 67 percent); 44 percent economic (norm 44 percent). Citrus rust mite on fruit infested 33 percent of groves (norm 56 percent); 20 percent economic (norm 36 percent). Populations slightly below average for January. Little change expected from present moderate level. Scattered, heavy infestations may be expected in all districts. Highest districts west, south, north, central and east. TEXAS CITRUS MITE (Eutetranychus banksi) infested 40 percent of groves (norm 26 percent); 14 percent economic (norm 8 percent). At near normal low level for January. Population will continue low; a few heavy infestations will occur. Highest districts west and central. CITRUS RED MITE (Panonychus citri) infested 40 percent of groves (norm 56 percent); 7 percent economic (norm 27 percent). Population below normal for January. Current low level will continue with only occasional groves harboring important infestations. Highest districts west and north. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) normally a spring pest, has been at record low level throughout 1963 and is still very low. PURPLE SCALE (Lepidosaphes beckii) infested 99 percent of groves (norm 77 percent); 9 percent economic (norm 16 percent). GLOVER SCALE (L. gloverii) infested 73 percent of groves (norm 26 percent); 13 percent economic (norm 1). CHAFF SCALE (Parlatoria pergandii) infested 78 percent of groves (norm 39 percent); 16 percent economic (norm 1 percent). YELLOW SCALE (Aonidiella citrina) infested 37 percent of groves (norm 7 percent); 7 percent economic (norm 1 percent). FLORIDA RED SCALE (Chrysomphalus aonidum) infested 15 percent of groves (norm 55 percent); 1 percent economic (norm 8 percent). Little population change expected for any of above scale insects. The first 4 are above average abundance; all but yellow scale show high rate of parasitism. BLACK SCALE (Saissetia oleae) infested 28 percent of groves (norm 22 percent); 14 percent economic (norm 6 percent). Data indicate that overwintering population slightly higher than normal; this scale insect will be of little importance until spring. WHITEFLIES continue in high range and far above normal level for December. Highest districts east and central.



This map shows the location of the districts mentioned in this summary. These five districts -- north, central, south, west and east -- will be used hereafter for pest reporting rather than the 8 frost-warning districts previously used. Severity of infestation in districts will be in descending order. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Inspection of 3,750 traps 5,377 times in states of Chiapas, Campeche, Colima, Guerrero, Hidalgo, Jalisco, Mexico, Oaxaca, Puebla, Tabasco, Veracruz, Yucatan, Tamaulipas, Nuevo Leon, Sinaloa, Sonora and Baja California, the Federal District and the Territory of Quintana Roo showed negative results. (PPC, Mex. Reg., Dec. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Adults light on Meyer lemon fruit in Encinitas, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy on lettuce plantings in Holtville, Imperial County. (Cal. Coop. Rpt.).

A LEAFHOPPER (Erythroneura elegantula) - CALIFORNIA - Adults medium on strawberries in Fowler, Fresno County. (Cal. Coop. Rpt.).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Heavy on lettuce plantings in Holtville, Imperial County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Caused light damage to cabbage at Sanford, Seminole County. (Desin).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light to heavy damage on 200 celery plants at Sanford, Seminole County. (Desin).

COTTON INSECTS

WEEVILS (Anthonomus spp.) - ARIZONA - Infested field found south of Aztec, Yuma County; adults, larvae and pupae collected. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - No live larvae found in exposed trash in cotton fields in southern Eddy County; however, live larvae found around roots of cotton plants within 4-6 inches of surface. (N. M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Infesting 100-acre stand of Coulter pine in Pine Hills-Palomar areas, Cleveland National Forest. (J. Pierce, USFS). This species and Ips sp. causing as many as 50 fades in 2 to 3-acre plot of ponderosa pine in Ant Ridge area, Mendocino National Forest. (J. Levitan, USFS).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Salvage operations planned on the Davy Crockett National Forest for infestations scattered over approximately 80,000 acres; damage appears to be decreasing. About 200 infested trees in Double Lake recreation area of Sam Houston National Forest sprayed. Mortality continued to occur in Hardin, Houston, Jasper, Liberty, Polk, San Jacinto, Tyler and Trinity Counties. (Tex. Forest Pest Comm., Dec. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - All known infestations controlled in November; no new infestations observed throughout infested area. (Tex. Forest Pest Comm., Dec. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - I. avulsus, I. grandicollis and I. calligraphus damage decreased considerably. Salvage operations planned in infested area covering approximately 3,870 acres in Davy Crockett National Forest. (Tex. Forest Pest Comm., Dec. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - TEXAS - Light to moderate on pine trees in Potter and Randall Counties. (Newton).

GALL MIDGES (Cecidomyia spp.) - CALIFORNIA - Cecidomyia sp. collected from white fir in area west of Susanville, Lassen County; causes needle galls in native stands of white fir. (R. Blake, C. Smola, USFS). Second larval collection of C. pseudotsugae made on Douglas-fir; heavy and mining needles in Mount Tamalpais area, Marin County. (Cal. Coop. Rpt.).

CONIFER SAWFLIES (Neodiprion abietis complex) - CALIFORNIA - Infesting white fir in Big Bear Creek drainage area, San Bernardino National Forest. This is the first record of occurrence in this area. (J. Pierce, USFS).

A WHITEFLY (Aleuroplatus gelatinosus) - CALIFORNIA - Nymphs medium on oak trees in Hanford, Kings County. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - In NEW YORK, 2 egg clusters removed from shipment of logs in Clinton County destined for Canada. Inspections made west of Hudson River in southern section of State at various common carrier sites showed 15 light infestations in Orange County and light in 4 trailer parks in Ulster County. Environs of house trailer having Kansas plates found generally infested; however, trailer will remain indefinitely at present location. Trailer park at Cairo, Greene County, heavily infested and although nearly vacant, efforts are being made to obtain names and addresses of persons who moved out of the park after egg deposition last summer. As a result of inspections in CONNECTICUT, 83 egg masses treated and removed from 4 of 7 shipments of collected stock consisting of 1,378 plants; 147 egg masses treated and removed from 9 of 16 shipments of Christmas trees and 2 clusters removed from 28 cords of fuelwood. Nursery property in Salem, New London County, previously with very little infestation, now show over 100 egg clusters found quite easily. In western MASSACHUSETTS, 34 egg clusters removed from small shipment of evergreens. Inspections in nursery resulted in treating of 54 egg clusters in peripheral areas and 1 cluster on nursery stock. (PPC, East. Reg., Dec. Rpt.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Light on Juniperus chinensis nursery stock in Santa Rosa, Sonoma County. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Pupal cases on willows in large lake area in Tallapoosa County contain numerous eggs. (Barwood, Wise et al.).

A WEEVIL (Scyphophorus acupunctatus) - CALIFORNIA - Adults medium in agave roots in Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Aphis gossypii and Myzus persicae medium on hollyhock in Brawley, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Lachnus salignus found on willow trees in Maricopa County on edge of city. (Ariz. Coop. Sur.).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Heavy on euonymus plants in Cotton County. (Okla. Coop. Sur.).

A LEAFHOPPER (Alconeura insulae) - FLORIDA - Moderate on leaves of Jamaica-dogwood (Piscidia piscipula) at Islamorada, Monroe County. (Knowles, Dowling, Jan. 17).

MEALYBUGS - CALIFORNIA - Pseudococcus microcirculus infesting cattleya orchids in orchid house in Larkspur, Marin County; eradication treatment continues. P. obscurus medium on gardenia plants in Riverside, Riverside County. P. citri medium on eucharis-lily plants in Costa Mesa, Orange County. (Cal. Coop. Rpt.).

Coccids in Florida - Chrysomphalus aonidum severely damaged Moraea sp. at Tampa, Hillsborough County (Hale, Jan. 16); Icerya purchasi caused moderate damage to Lysiloma bahamensis at Upper Key Largo, Monroe County (McLean, Knowles, Jan. 17);

Comstockiella sabalis severely damaged Sabal palmetto at Plymouth, Orange County (Musgrove, Jan. 17); and Phenacaspis cockerelli severely damaged Magnolia gandiflora at Lake Wales, Polk County. (Keen, Peterson, Jan. 20).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - This species and Aculus ligustri heavy on privet plants in Beaumont, Riverside County. (Cal. Coop. Rpt.).

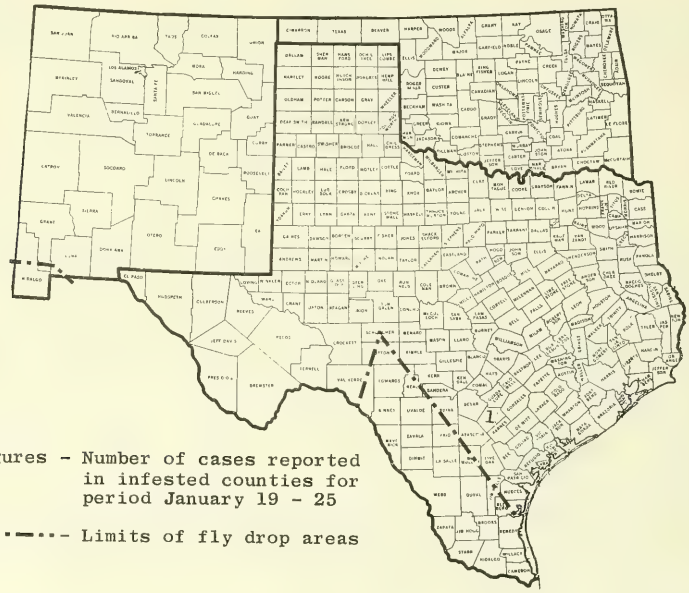
A FALSE SPIDER MITE (Tenuipalpus pacificus) - CALIFORNIA - Nymphs and adults heavy on Phalaenopsis sp. in Arcadia, Los Angeles County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During period January 12 - 18, the five-State eradication area in the Southwest continued to undergo the longest period of screw-worm free status; last known confirmed case collected December 18, 1963, in Hidalgo County, TEXAS. The area has been free of screw-worm for one month. A total of 69,070,250 sterile flies was released during this period.

During period January 19 - 25, one case was reported, being collected January 20, in Wilson County, TEXAS; however, case is an oddity due to fact that of 43 larvae, only 2 were screw-worm, and these well preserved (hard) and unlike larvae recently collected. Special releases of sterile flies being made over premise; usual ground control procedures, including inspection and spraying of livestock in immediate area, being carried out. A total of 67,930,650 sterile flies was released during this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period January 19 - 25

-·-·-·- Limits of fly drop areas

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Counts on yearling steers in Noble County ranged 0-47 per head (average 31 per head); averaged 7 per head in cows. Counts in Bryan County (south central) ranged 3-8 per head in 50 percent of cattle checked, with ranges of 12-18 per head on cows and 4-6 per head in yearling cattle in Greer County (west central). (Okla. Coop. Sur.). NORTH CAROLINA - Averaged 5.8 per animal in one group of 24 year-old native beef animals in Wake County. Another group of 6 young bulls averaged 4.8 grubs per animal. Ranged 0-18 on all animals. No grubs appeared ready for emergence; 31 larvae in backs approximately 4 weeks; 14 for 3 weeks; 9 for 2 weeks; and 9 for 1 week. Four larvae in second instar. Det. by W. G. Bruce. (Mount).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate to heavy in Bryan and Cotton Counties. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Heavy in Cotton and Bryan Counties. (Okla. Coop. Sur.).

BLACK-LEGGED TICK (Ixodes scapularis) - FLORIDA - Found on man at Upper Key Largo, Monroe County. (McLean, Knowles, Jan. 18).

HOUSEHOLD AND STRUCTURAL INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Infesting dog food in basement of home at Langley Park, Prince Georges County. (U. Md., Ent. Dept.). OKLAHOMA - Causing concern to homeowners in Cushing area. (Okla. Coop. Sur.).

BEAN WEEVIL (Acanthoscelides obtectus) - CALIFORNIA - Medium in building in Camino, El Dorado County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Causing nuisance around properties in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

GERMAN COCKROACH (Blattella germanica) - MARYLAND - Infesting buildings at 2 locations in Prince Georges County. (U. Md., Ent. Dept.).

CLUSTER FLY (Pollenia rudis) - MARYLAND - Adults caused considerable annoyance in home in Montgomery County. (U. Md., Ent. Dept.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - All stages present in at Annapolis, Anne Arundel County, and at Baltimore. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Blacklight catches of adults in infested Monroe County potato storage varied 1-14 per day with average of 6 per day during period January 1-21. Fogging operations, using pyrethrins, underway. (Laser, Wells).

BROWN SPIDER BEETLE (Ptinus clavipes) - TEXAS - Heavy, local infestations in stored grain in Harris County. (Tex. Coop. Rpt., Matheny).

BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Occasional Hippodamia convergens collected on warm days in grain and vetch. (Ark. Ins. Sur.). ALABAMA - Hippodamia convergens averaged 10 (ranged 5-15) per 24 inches of overwintering shallot hills in home garden in Lee County. H. convergens and other insects slightly active at 1-4

inches below ground surface. Two rows, 80 feet long, contained about 800 adults which equals population of 7-8 thousand per acre. Few specimens of H. convergens and Cyclonea sanguinea taken from pine trees. Some Chilocorus stigma noted hibernating beneath bark of large pecan trees. (McQueen).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Ranged 1,500 to 2,000 per acre; 1-2 per onion hill. (McQueen). ARKANSAS - Occasional specimens collected on warm days in small grain and vetch. (Ark. Ins. Sur.).

A FLOWER FLY (Baccha clavata) - FLORIDA - Larvae predatory on aphids on loquat at Lake Helen, Volusia County. (Roberts, Jan. 16).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Treatment completed on highway rights-of-way in Harris County; appraisal survey in Montgomery County revealed general reinfestation of treated area. LOUISIANA - Detection surveys revealed newly infested areas in several parishes; largest acreages in Madison and Richland Parishes. Control in Morehouse Parish apparently very effective, but controls in Avoyelles, Evangeline and St. Landry Parishes not satisfactory to date. MISSISSIPPI - Collected for first time in Pontotoc County. ARKANSAS - Surveys in Ashley County revealed some extension of infestation. TENNESSEE - Negative inspections made in 36 counties. NORTH CAROLINA - Surveys show small extensions in several areas. GEORGIA - Found for first time in Randolph County; extensions of infested areas found in several counties. ALABAMA - Infestation found for first time in Lawrence County. (PPC, South. Reg., Dec. Rpt.). Flight between Alexander City and Dadeville, Tallapoosa County, at 2:00 p.m., January 23; temperature at 71° F. (McQueen). Large numbers of workers observed on mounds in Clay County, January 22. (Barwood).

EUROPEAN CHAFER (Amphimallon majalis) - NEW JERSEY - Control operations concluded in Hudson County; 1,152 acres treated during late summer and fall seasons, including all known infestations found in 1963. (PPC, East. Reg., Dec. Rpt.).

CORRECTIONS

CEIR 14(1):4 - BOLL WEEVILS (Anthonomus spp.) should be changed to read A WEEVIL (Anthonomus sp.).

CEIR 14(4):51 - MOSQUITOES - TEXAS and FLORIDA - Culiseta inorata should read Culiseta inornata.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 1/21			BL																		2			
SOUTH CAROLINA																								
Charleston 1/13-19	20-54	1.13	BL	0			0		0	0	0						0	0	0	0	0		0	
Charleston 1/20-26	32-68	0.20	BL	3			0		1	0	0						0	2	0	0	1		0	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole - cole crops (crucifers); cott. - cotton; FC = field corn; grain = small grains; leg. - legumes (unspecified); lett. - lettuce; pean. = peanut; pepp. - pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 6 February 7, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 February 7, 1964 Number 6

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRAIN APHIDS remain noneconomic in areas of Oklahoma and New Mexico. Light to medium populations of WINTER GRAIN MITE continue to cause concern in some oat fields in Kaufman County, Texas. PEA APHID increasing on alfalfa in Maricopa, Pinal and Yuma Counties, Arizona. (p. 75).

GREEN PEACH APHID moderate on lettuce in Maricopa and Yuma Counties, Arizona, with controls applied to vegetables in both counties. (p. 76).

COMMON CATTLE GRUB causing some concern in areas of Oklahoma. (p. 78).

DETECTION

A SOIL MEALYBUG (*Rhizoecus graminis*) reported for first time in San Mateo County, California. (p. 81).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 78).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 82).

Reports in this issue are for week ending January 31, unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

FEBRUARY 1964

The Weather Bureau's 30-day outlook for Febraury calls for temperatures to average below seasonal normals in the eastern third of the Nation except for near normal in New England and the western Great Lakes. Below normal temperatures are also predicted for the West Gulf States, California valleys, and the northern Great Basin. Above normal averages are anticipated over the northern Plains and Pacific Northwest, with near normal in unspecified regions.

Precipitation is expected to be greater than normal along the Atlantic seaboard and in the Gulf States. Subnormal amounts are indicated for the Midwest and Far West, except for near normal along the Pacific Coast. In the remainder of the country about normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRAURY 3

Arctic air spread over the midsection of the country at the beginning of the week. Bismarck, North Dakota, registered 29° below zero Monday morning, January 27. A few snow flurries occurred along the Great Lakes and over parts of the northern Appalachians. Heavier snow fell in New York. Falls of 6 to 9 inches fell in the Catskills and the central Hudson Valley and up to 12 inches in Massachusetts. In contrast, the mercury at Miami, Florida, rose to 85° on Tuesday afternoon.

Rains fell almost every day along the Pacific coast of Oregon and Washington. Amounts ranged up to 7 inches along the Oregon coast.

A storm developed over Texas at midweek. Soaking rains, with amounts exceeding 2 inches at many places and 3 inches in some localities, spread northward and eastward from the Edwards Plateau. Texas received the beneficial rains on Wednesday and Thursday. The rains spread to Arkansas, Missouri, and eastern Oklahoma on Thursday, and to the Atlantic coast on Friday. Light rain continued over the Northeast on Saturday with a few snow flurries in the Northern Atlantic States. A few flurries also occurred in the Great Lakes region and in the northern Rocky Moutains.

At the end of the week, a new storm was producing heavy snow over the southern Rocky Mountains and southwestern Great Plains from New Mexico to east central Nebraska. Snowfall ranged from 5 inches in parts of Nebraska to 9 inches in parts of New Mexico and the Texas and Oklahoma Panhandles. Strong winds, with gusts to 50 m.p.h., piled the snow in 5-foot drifts.

Temperatures for the week averaged below normal east of the Mississippi River and south of the Ohio River and above normal over most of the rest of the Nation. Temperatures averaged more than 6° above normal over most of the northern and central Great Plains. Temperature departures ranged from -5° at Atlanta, Georgia, to +16° at Havre, Montana.

The Far Southwest and the northern Great Plains received no important rains during the week. Many places in those areas received no rains. Central Texas received more than 2 inches. Rain along the Pacific coast in Washington ranged from 1 to 4 inches and in Oregon from 1 to 7 inches. Elsewhere precipitation totals were generally less than 0.25 inch. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - OKLAHOMA - Continues generally noneconomic in checks made in Major, Blaine, Logan, Alfalfa, Payne, Kiowa, Beckham and Custer Counties. Ranged 0-6 per 5 linear feet of row; many checks in fields negative. Counts in sandy land fields around Perkins continue at 10-15 per linear foot. (Okla. Coop. Sur.). NEW MEXICO - Remains light in Curry County winter wheat fields; 5-15 per linear foot in fields checked. (N. M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Most common aphid in small grains in Beckham, Logan and Payne Counties; averaged fewer than 10 per linear foot. Some colonization observed in isolated spots in Logan County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Checks in Major, Alfalfa and Blaine Counties negative; 0-1 per linear foot in Beckham County. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Surveys negative in Major, Blaine, Alfalfa, Logan and Payne Counties. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Increasing in alfalfa in Maricopa, Pinal and Yuma Counties. Ranged 40-50 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Light, scattered populations present on overwintering alfalfa in Logan and Payne Counties. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA -Continues very light. Only a few fields show indications of increase in Maricopa County. (Ariz. Coop. Sur.). OKLAHOMA - Checks in Logan and Payne Counties negative in alfalfa. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults increased in Maricopa County alfalfa; averaged 25 per 100 sweeps. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Adults ranged 25-30 per 100 sweeps in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Adult flights in Maricopa County showed increase over previous week. Populations unchanged in Yuma County alfalfa. (Ariz. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Counts in Major, Alfalfa and Blaine Counties ranged 0-4 larvae per 5 linear feet; none noted in Logan and Payne Counties. (Okla. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - Occasional larva found on overwintering alfalfa in Payne and Kiowa Counties. (Okla. Coop. Sur.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Hatching not yet occurred to any degree in Yuma County alfalfa. Adults found in gin trash near Buckeye, Maricopa County. (Ariz. Coop. Sur.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Limited activity observed around ant beds in Logan County. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Widespread, light to moderate infestations still causing concern in some Kaufman County oat fields. (Turney).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Surveys in Blaine, Major, Alfalfa, Logan and Payne Counties negative. (Okla. Coop. Sur.).

FRUIT INSECTS

A CLEARWING MOTH (Sanninoidea sp.) - NEW MEXICO - Moderate to heavy; causing severe damage to peach trees in Belen-Los Lunas area, Valencia County. (N. M. Coop. Rpt.).

A CARPOSINID MOTH (Bondia comonana) - CALIFORNIA - Light on apricot tree trunks near ground in Ballico, Merced County. (Cal. Coop. Rpt.).

PUSS CATERPILLAR (Megalopyge opercularis) - ALABAMA - Few cocoons observed on apple trees in Coosa County. (Barwood, Wise).

SAN JOSE SCALE (Aspidiotus perniciosus)- ALABAMA - Quite heavy on last year's growth of apples in 3-acre orchard in Lee County. Orchard recently pruned and will receive dormant spray soon. Not too noticeable on old growth. (McQueen).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Locally heavy on citrus in Fillmore, Ventura County. (Cal. Coop. Rpt.).

A SOFT SCALE (Saissetia sp.) - CALIFORNIA - Immature specimens heavy on olive trees locally in Danville, Contra Costa County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Lightly infested 93 percent of 200 celery plants at Sanford, Seminole County. (Desin).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Scattered infestations continue bothersome to vegetable growers in Maricopa, Yuma and Pinal Counties. (Ariz. Coop. Sur.). FLORIDA - Damage light on 9 percent of 200 cabbage plants inspected at Sanford, Seminole County; crops very good to date. (Desin).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate on lettuce in Maricopa and Yuma Counties; controls applied to vegetables in both counties. (Ariz. Coop. Sur.). CALIFORNIA - Heavy on mustard in Cucamonga, San Bernardino County. (Cal. Coop. Rpt.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - ALABAMA - All large purple top turnips (roots 2-4 inches in diameter) heavily infested in home garden in Lee County; feeding on feeder and tap roots from 1-6 inches below surface. (McQueen).

MELON APHID (Aphis gossypii) - ARIZONA - Extremely light on vegetables during week in Maricopa County. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Overwintering pupae plentiful in tips of loblolly and shortleaf pines in Lee, Macon and Montgomery Counties. (McQueen).

A GALL MIDGE (Contarinia pseudotsugae) - CALIFORNIA - Medium on Douglas-fir in Jarbo Gap, Paradise, Butte County. (Cal. Coop. Rpt.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae heavy in dichondra lawns in Riverside, Riverside County; populations more noticeable during past year than for several previous years. (Cal. Coop. Rpt.).

GRANULATE CUTWORM (Feltia subterranea) - CALIFORNIA - Light on dichondra lawns in Riverside, Riverside County; was a considerable pest of dichondra in 1963. (Cal. Coop. Rpt.).

DOGWOOD BORER (Thamnosphecia scitula) - MARYLAND - Larvae infesting dogwood on property at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae and pupae light on leaves of Christmas cactus in Vista, San Diego County. (Cal. Coop. Rpt.).

A PYRAUSTID MOTH (Udea profundalis) - CALIFORNIA - Larvae light on verbena plants in Visalia, Tulare County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Infested 50-foot euonymus hedge at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

Coccids in California - Chionaspis etrusca medium on tamarisk trees in Thermal, Riverside County. Adults of Aspidiotus cyanophylli medium on cactus nursery plants in Lindsay, Tulare County. Pseudococcus adonidum adults light on gardenia plants in Imperial Beach, San Diego County. Eriococcus coccineus and Phenacoccus solani medium on cactus nursery stock in Exeter, Tulare County. (Cal. Coop. Rpt.).

Coccids in Florida - Aspidiotus diffinis generally infesting Persea sp. at St. Petersburg, Pinellas County, (Miller, Bingaman, Jan. 16); Asterolecanium pustulans moderate on stem of Solanum pseudo-capsicum at Marathon, Monroe County, (Dowling, Knowles, Jan. 14); Pseudococcus comstocki light on stem of Cissus quadrangularis at Raiford, Union County, (Collins, Jan. 7); and Saissetia nigra moderate on stem and leaves of C. discolor at Miami, Dade County, (McFarlin, Jan. 20). The above are new host records for the Florida Division of Plant Industry. (Fla. Coop. Sur.). Phenacaspis cockerelli severely damaging leaves of Michelia fuscata at Inverness, Citrus County. (Williams). Fiorinia theae severely damaging stem and leaves of Camellia sasanqua at Perry, Taylor County. (Miller, Jan. 16).

MEALYBUGS - NEW MEXICO - Moderately heavy and damaging greenhouse plants in Santa Fe area, Santa Fe County; some plants killed. (N. M. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Medium on gardenia plants in National City, San Diego County. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Light on privet leaves in Imperial Beach, San Diego County. Medium on small privet plants in National City, San Diego County. (Cal. Coop. Rpt.).

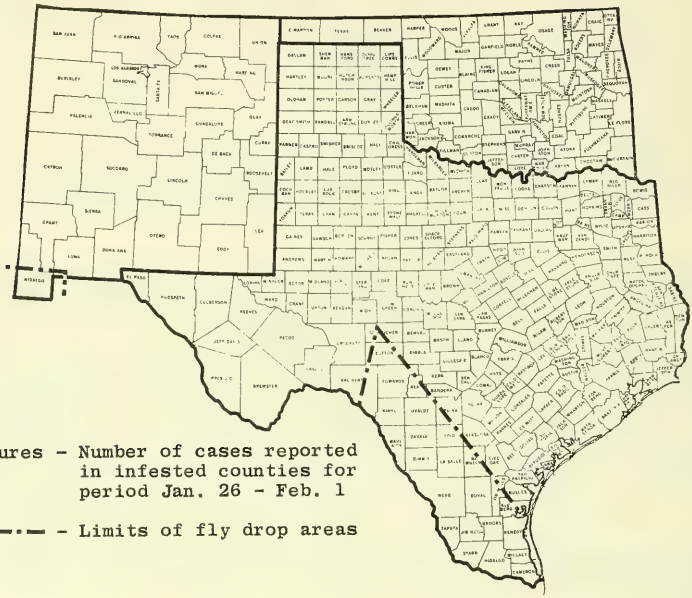
A SPIDER MITE (Tetranychus neocaledonicus) - FLORIDA - Severely damaging leaves of croton (Codiaeum sp.) at Goulds, Dade County. (Brown, Knowles).

SNAILS - FLORIDA - Oxyloma effusa severely damaging stem and leaves of Philodendron hastatum seedlings at Apopka, Orange County, (Musgrove, Dec. 12); Helix aspersa caused localized damage to Cupressus sempervirens f. glauca at Bradenton, Manatee County, (Golby, Dec. 13). Det. by W. J. Clench. (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period January 26 - February 1, no screw-worm specimens have been submitted from the Southwest. Collection of specimens that are not screw-worm remains good, indicating ranchers are examining animals for possibilities of infestations. A total of 62,086,650 sterile flies was released during the period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period Jan. 26 - Feb. 1

—·—·— - Limits of fly drop areas

MOSQUITOES - FLORIDA - Considerable potential for adults to be nuisance in early February if weather remains mild based on conditions in Gainesville area. Presumably same condition elsewhere in State. Rainfall approximately 14.5 inches, one of the wettest on record for Gainesville in January. Dips in grassy bottomed pools 1-3 miles from Gainesville on January 29 and 30 show abundant larvae with fourth instar predominating. Pupae common and adults expected soon. Aedes infirmatus most abundant, A. vexans and Culex restuans probably not as abundant, but common. One medium-sized larva of Anopheles sp. taken also. (Mead).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Total of 1,500 cattle in Elsinore, Richfield, Salina and Koosharem, Sevier County, treated with newer systemics in ranch demonstrations; stock also treated by several stockmen. (Knowlton, Rickenbach; Jan. 28). Total of 1,000 cattle sprayed in Kane County with newer systemics. (Knowlton, Hatch; Jan. 30). Total of 5,000 cattle treated with newer systemics in Sevier County since fall of 1963. (Knowlton, Rickenbach).
OKLAHOMA - H. lineatum grubs ranged 10-20 per head on yearling calves in Pauls Valley; averaged 15 per head on dairy heifers in Kay County. Counts per head ranged 4-6 in Washington County; 3-10 on 50 percent of cattle checked in Bryan County; and 1-10 on cattle in Blaine County. (Okla. Coop. Sur.).

ARKANSAS - Counts of H. lineatum grubs per animal by county, as follows: Crawford - 0-7 on 20 treated animals and 0-28 on 7 untreated animals; Washington - 0-4 on 48 treated animals and 0-30 on 73 untreated animals. Counts on untreated bulls ranged as follows: 0-28 on 13 bulls from Sebastian County and 2-25 on 3 bulls from Benton County. Counts on untreated bulls from other counties as follows: 15 from 1 bull in Johnson; 20 from 2 bulls in Boone; 6 from 1 bull in Conway; 30 from 1 bull in Sharp; and 2 from 1 bull in Madison. (Boyer).

CATTLE LICE - UTAH - Total of 1,500 cattle treated for lice control with newer systemics in ranch demonstrations in Sevier County. (Knowlton, Rickenbach). Abundant on many Kane County cattle. However, only about 1,500 known to be dipped and 1,200 sprayed for lice control; 1,000 cattle sprayed with a newer systemic for control in Kane County. (Knowlton, Hatch). Total of 8,500 cattle treated since fall in Sevier County; 2,000 dipped at Salina. (Knowlton, Rickenbach).

WINTER TICK (Dermacentor albipictus) - TEXAS - Heavy on antelope in Presidio County. (Steen).

HOUSEHOLD AND STRUCTURAL INSECTS

ORIENTAL COCKROACH (Blatta orientalis) - UTAH - Infesting home at Bountiful, Davis County, and apartment building at Salt Lake City, Salt Lake County. (Knowlton).

BROWN-BANDED COCKROACH (Supella supellectilium) - MARYLAND - Infested property in Rockville, Montgomery County. (U. Md., Ent. Dept., Jan. 24).

CAMEL CRICKETS - NEW MEXICO - Appearing in homes in several areas of Albuquerque; causing concern to housewives. (N. M. Coop. Rpt.).

A SPRINGTAIL - TEXAS - An entomobryid species heavy locally and causing concern to homeowners in Tom Green County. (Tex. Coop. Rpt., Boyd).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Beetles, largely this species, heavy in home pantry at American Fork, Utah County. (Knowlton).

STORED-PRODUCT INSECTS

LESSER MEALWORM (Alphitobius diaperinus) - FLORIDA - Adults collected in horse feed at Pensacola, Escambia County. (Boyd, Jan. 22).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Collected in stored oats at Pensacola, Escambia County. (Boyd, Jan. 22).

COWPEA WEEVIL (Callosobruchus maculatus) - CALIFORNIA - Adults heavy in black-eyed bean samples in Corcoran, Kings County. (Cal. Coop. Rpt.).

A BOSTRICHID BEETLE (Prostephanus truncatus) - TEXAS - Light to heavy and damaging stored corn in Guadalupe County. (Tex. Coop. Rpt., Massey).

BENEFICIAL INSECTS

BROWN LACEWINGS (Micromus spp.) - ALABAMA - Numerous larvae, well camouflaged with lichens and bark material, observed feeding on various bark insects under bark of pecan trees. (McQueen).

MISCELLANEOUS INSECTS

A SOIL MEALYBUG (Rhizoecus graminis) - CALIFORNIA - Adults medium in soil locally in Colma, San Mateo County. This is the first record of this species other than original location in Oakland, Alameda County, where found on grass roots. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey and detection continues in city of Sacramento, Sacramento County; 2 additional infested blocks added outside of known infestation. Over 300 city blocks treated to January 31 in second season of eradication. (Cal. Coop. Rpt.).

VINEGAR FLIES (Drosophila spp.) - ALABAMA - Large numbers of adults and larvae on 134-bushel lot of decomposing sweetpotatoes previously fumigated with methyl bromide in Mobile County. (Seibels).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Few mated queens observed crawling on outside of mounds in Clay County; temperature about 50° F. (Harris, Barwood). FLORIDA - Light on grass and soil at Tallahassee, Leon County; det. by W. Breidenbach. (Johnson, Jan. 21).

BLACK CARPENTER ANT (Camponotus pennsylvanicus) - ALABAMA - Colony swarming in Lee County January 24; temperatures about 70° F. (Barwood).

LIGHT TRAP COLLECTIONS

	Temperature°F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA Gainesville 1/28			BL	1																				
GEORGIA Tifton 1/16-22			BL							0	0								0	0				
SOUTH CAROLINA Charleston 1/27-2/2	28-66	0.37	BL	0			0		6	0	0	0					0	0	0	0	0		0	
TEXAS Brownsville 1/14-26			4 BL	268			2		248		33	591					285	202		8				

* BL = blacklight; I = incandescent, MV - mercury vapor ; O - other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole cole crops (crucifers); cott. = cotton; FC = field corn; grain small grains; leg. legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. - potatoes; SC - sweet corn; sol. = solanaceous plants (unspecified); soy. - soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on November 30, 1963, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) twice in baggage at Miami, Florida.

A BRUCHID (Callosobruchus analis (F.)) (a destructive species in parts of southern Asia) once in stores in mung beans at Wilmington, North Carolina.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 15 times in baggage, cargo, mail and stores; 8 times at New York, New York; 5 times at Honolulu, Hawaii; and 2 times at San Francisco, California.

ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) twice in ship's stores at Seattle, Washington.

OLIVE FRUIT FLY (Dacus oleae Gmel.) 23 times in baggage and mail; 22 times at New York, New York, and one time at Miami, Florida.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) once in apricot in mail at San Diego, California.

CABBAGE MOTH (Mamestra brassicae (L.)) 6 times, 5 times in stores and one time in baggage; two times each at Baltimore, Maryland, and at New York, New York; and one time each at Philadelphia, Pennsylvania, and at Chicago, Illinois.

A WEEVIL (Premnotrypes sp.) (a pest of potato in South America) 4 times in stores; twice at Mobile, Alabama; and one time each at New Orleans, Louisiana, and at Baltimore, Maryland.

A STENOMID MOTH (Stenoma catenifer Wlsm.) (a pest of avocado in Mexico and Central America and northern South America) in baggage at Laredo, Texas.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 7 times in general cargo; 4 times at New Orleans, Louisiana; one time each at Wilmington, North Carolina; Detroit, Michigan; and Norfolk, Virginia.

KHAPRA BEETLE (Trogoderma granarium Everts) (or probably that species) 34 times in stores, ships' holds and contaminating cargoes of sago seed, celery seed, black pepper, almonds, raw cotton, gum arabic, rice, goat skins, peanuts, lentils, burlap and soybeans; 9 times at New York, New York; 8 times at Charleston, South Carolina; 4 times at Houston, Texas; 2 times at Detroit, Michigan; 2 times at Baltimore, Maryland; 2 times at Savannah, Georgia; 4 times at Philadelphia, Pennsylvania; and one time each at Seattle, Washington; Chicago, Illinois; and Norfolk, Virginia.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 7 February 14, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 February 14, 1964 Number 7

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG continues low or noneconomic on small grains in Arkansas, Kansas, Oklahoma, Texas and New Mexico. Populations of PEA APHID low on alfalfa in Arizona and New Mexico, but SPOTTED ALFALFA APHID beginning to increase on alfalfa in Maricopa and Yuma Counties, Arizona. Larvae of A WEEVIL (*Hypera brunneipennis*) collected in small numbers in alfalfa in Maricopa and Yuma Counties, Arizona, with some damage evident in a few fields. (p. 85).

Surveys for BEET LEAFHOPPER on native vegetation in Pinal County, Arizona, indicate that populations below normal for time of year. Small numbers of POTATO PSYLLID adults also found in Pinal County, Arizona, and light populations found on leaves of chili peppers in Ventura County, California. (p. 85).

COMMON CATTLE GRUB levels heavy throughout Oklahoma. (p. 88).

DETECTION

FACE FLY (*Musca autumnalis*) recorded for the first time in Montana. (p. 88).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 89). No screw-worm specimens submitted from the Southwest during the period February 2-8.

Reports in this issue for week ending February 7, unless otherwise indicated.

WEATHER OF THE WEEK ENDING FEBRUARY 10

Early in the week an intense, slow-moving low brought a foot or more of snow to a wide area extending from eastern New Mexico to south central Nebraska. The Texas Panhandle received the heaviest snowfall in 8 years. The snow reached depths of 18 inches or more from Hereford northeastward and from 22 to 25 inches in the Borger vicinity. Strong winds piled the snow in drifts up to 20 feet deep, isolating some Texas towns and ranches. Twelve to 16 inches of snow fell in the Oklahoma Panhandle and winds up to 35 m.p.h. drifted the snow and blocked roads in that area. Up to 30 inches of fresh snow fell in the higher elevations of southern and southeastern Colorado. Southwestern Kansas received up to 13 inches of snow Monday and Tuesday. On Tuesday and Wednesday, rain fell eastward and southeastward from the snow area and into the neighboring States.

By midweek, rain fell over most of the southeastern quarter of the Nation. The rains then spread northward. Rain and drizzle fell over the Ohio River Valley and the Atlantic Coastal States. New York and New England received sleet and snow. Accompanied by strong winds and falling temperatures, the storm was centered in New England by the weekend, where it produced up to 6 inches of snow in the higher elevations. Temperatures dropped and snow fell in the Great Lakes region on the western side of this intense low.

A storm moved from Canada to the northern Great Plains during the weekend. Winds reached 50 m.p.h., in gusts. The temperature at Bemidji, Minnesota, dropped to 30° below zero Saturday morning.

Temperatures averaged above normal over northern California, along the California coast, the northern Rocky Mountains, the northern and central Great Plains, the Great Lakes region, and the middle and northern Atlantic States. Temperatures averaged below normal over the Great Basin, the central and southern Rocky Mountains, the southern Great Plains, the Gulf States, the southern Appalachians, and along the southern Atlantic coast. Temperature departures ranged from -12° at Amarillo and El Paso, Texas, to +21° at Havre, Montana.

Precipitation exceeded 1.00 inch over Oklahoma, Arkansas, parts of Texas and Louisiana, and most of the area east of the Appalachians. Totals were generally less than 0.25 inch over the northern Great Plains, the Great Lakes region, and the Rocky Mountains. Much of California, Arizona, Nevada, and Idaho received no rain or only light amounts. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - GEORGIA - Light on small grains throughout southern area. (Johnson). ARKANSAS - Surveys in northwestern area negative. (Ark. Ins. Sur.). KANSAS - Populations very low in wheat and barley fields in southeast and south central areas. Only occasional specimen found. (Peters). OKLAHOMA - Negative on wheat checked in Wagoner and Muskogee Counties (east central). Counts light in Mayes County; 2-12 per linear foot. (Okla. Coop. Sur.). TEXAS - No significance to date because of extremely cold weather. (Tex. Coop. Rpt.). NEW MEXICO - Very light in grains in Eddy and Chaves Counties.(Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Surveys in northwestern area negative. (Ark. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARKANSAS - Surveys in northwestern area negative. (Ark. Ins. Sur.). OKLAHOMA - Checks in Choctaw County alfalfa negative. (Okla. Coop. Sur.). KANSAS - Found only on a south-facing roadside embankment in Montgomery County, southeast; not found in alfalfa fields in open in southeast and south central areas. (Peters). ARIZONA - Populations remain about same in alfalfa in Maricopa and Yuma Counties; ranged 20-30 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Spotted in alfalfa, northern Eddy County.(Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increasing in Maricopa and Yuma Counties; ranged 15-20 per 100 sweeps in alfalfa. (Ariz. Coop. Sur.). OKLAHOMA - Light on overwintering alfalfa in Choctaw County, southeast. (Okla. Coop. Sur.). KANSAS - None found in southeast and south central areas. (Peters).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 5-8 per 100 sweeps in alfalfa in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Small number of larvae collected in alfalfa in Maricopa and Yuma Counties. Some damage evident in a few fields. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - CALIFORNIA - Locally light adult feeding on alfalfa in Fresno, Fresno County. (Cal. Coop. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - CALIFORNIA - Pupae light on bent grass turf in Patterson, Stanislaus County. (Cal. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Increasing in alfalfa; averaged 7 per 100 sweeps in Yuma County, and 14 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - Light on alfalfa in Fresno, Fresno County. (Cal. Coop. Rpt.).

GRASSHOPPERS - OKLAHOMA - Limited egg surveys made in 2 western counties showed 7 viable egg pods per 14 square feet of soil in one county and 1 per 10 square feet in another. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - No significance to date because of extremely cold weather. (Tex. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Small numbers appearing on alfalfa in Yuma County. (Ariz. Coop. Sur.).

SPRINGTAILS - NEW MEXICO - Abundant in seedling alfalfa near Artesia, Eddy County. No apparent damage. (Coop. Rpt.).

FRUIT INSECTS

Citrus Insect Situation in Florida - End of January - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 55 percent of groves (norm 66 percent); 41 percent economic (norm 41 percent). Citrus rust mite on fruit infested 37 percent of groves (norm 54 percent); 23 percent economic (norm 35 percent). Population will remain slightly below average February level. Fruit infestations very low but will increase. Important infestation will continue in the higher districts which are west, north and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 35 percent of groves (norm 19 percent); 14 percent economic (norm 6 percent). Population was above average for January but has dropped to low level in all districts. Little change expected. CITRUS RED MITE (Panonychus citri) infested 38 percent of groves (norm 56 percent); 12 percent economic (norm 28 percent). This mite below average abundance and at very low level in all districts. Although increase expected, very few infestations will become important. PURPLE SCALE (Lepidosaphes beckii) infested 75 percent of groves (norm 79 percent); 6 percent economic (norm 16 percent). Highest districts west, south and east. GLOVER SCALE (L. gloverii) infested 72 percent of groves (norm 26 percent); 11 percent economic (norm 1 percent). Highest districts south, east and west. CHAFF SCALE (Parlatoria pergandii) infested 73 percent of groves (norm 39 percent); 15 percent economic (norm 1 percent). Highest districts east, south and north. BLACK SCALE (Saissetia oleae) infested 21 percent of groves (norm 20 percent); 8 percent economic (norm 6 percent). Highest districts west and east. YELLOW SCALE (Aonidiella citrina) infested 36 percent of groves (norm 7 percent); 8 percent economic (norm 1 percent). Highest districts south, central and west. Little change is expected in the scale insect conditions; only a few scattered infestationsare important at this time. Larval forms of WHITEFLIES present in 74 percent of groves (norm 54 percent); 32 percent of groves moderate to heavy (norm 10 percent). Population will continue above average. Highest districts east, south, central and north. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)). See map in CEIR 14(5):65 for locations of districts.

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Continues a problem to young citrus trees in greenhouses in Yuma County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Small numbers of adults found during survey of native vegetation in Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - Light on leaves of chili peppers in Morepark, Ventura County. (Cal. Coop. Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Surveys on native vegetation in Pinal County indicate populations below normal for time of year. (Ariz. Coop. Sur.).

APHIDS - TEXAS - Several species light to heavy on various vegetable crops in Rio Grande Valley. (Tex. Coop. Rpt., Meisch).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in southern area. (Johnson).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Small populations occurring on lettuce in Yuma and Maricopa Counties; averaged 15 per plant. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae persist in lettuce fields of Yuma and Maricopa Counties; averaged 2 per 100 plants in Yuma County and 4 per 100 plants in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Lightly damaged 6.5 percent of 200 inspected cabbage plants at Sanford, Seminole County. (Desin). ARIZONA - Very small numbers found in lettuce fields of Yuma and Maricopa Counties; averaged 3 per 100 plants. (Ariz. Coop. Sur.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light damage to 85.5 percent of 200 celery plants at Sanford, Seminole County. No adults observed; damage confined to older leaves. Newer leaves practically free of infestation. (Desin).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco in plant bed in southern area. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Examination of pines affected during fall of 1963 shows some adult and larval activity in dying trees in Clay and Etowah Counties. Numerous larvae apparently ready to pupate present; 15 per 100 trees. (Barwood et al.).

A BARK BEETLE (Phloeosinus cupressi) - CALIFORNIA - Heavy in cypress in Baywood Park, San Luis Obispo County; particularly troublesome this past year. (Cal. Coop. Rpt.).

APHIDS (Eulachnus spp.) - ALABAMA - Aphids, mainly this genus, continue feeding on pines throughout central area; moderate on pines in Lee and Clay Counties. (Barwood et al.).

LYONETIID MOTHS (Bucculatrix spp.) - ALABAMA - Numerous overwintering cocoons on oak limbs and twigs throughout central area. (McQueen).

FLORIDA RED SCALE (Chrysomphalus aonidum) - FLORIDA - Caused light damage to leaves of Kafir-plum (Harpephyllum caffrum) at Boca Raton, Palm Beach County. (Long, Jan. 28) This is a new host record for the Division of Plant Industry. (Fla. Coop. Sur.).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Hedges and other plantings heavily infested in Albuquerque area, Bernalillo County. Leaves becoming discolored and stems often "caked" with scales. (Coop. Rpt.).

WALNUT SCALE (Aspidiotus juglansregiae) - CALIFORNIA - Adults light on boxelder trees in Meiners Oaks, Ventura County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Light to moderate on ornamentals and fruit trees in Cleveland County. (Okla. Coop. Sur.).

AN ORCHID SCALE (Genaparlatoria pseudaspidiotus) - FLORIDA - Severely damaged leaves of vanda orchid at Fort Pierce, St. Lucie County. (Campbell, Jan. 30).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy on lantana plants in Camarillo, Ventura County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (Pseudococcus citri) - CALIFORNIA - Medium on Chinese-evergreen nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

STRIPED MEALYBUG (Ferrisia virgata) - CALIFORNIA - Continues on lantana plants on additional properties in Winterhaven, Imperial County; delimiting survey will continue. (Cal. Coop. Rpt.).

A WHITEFLY - NEW MEXICO - A problem on fuschia plants in greenhouse in northern area where light infestations a problem on poinsettias during December. (Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - MARYLAND - Eggs abundant on twigs of pin oak at Bethesda, Montgomery County. (U. Md., Ent. Dept.).

A BARK APHID - NEW MEXICO - Light to moderate infestations found feeding on weeping willow trees at Albuquerque, Bernalillo County. (Coop. Rpt.).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Noted on Juniperus chinensis var. aurea nursery plants in Van Nuys, Los Angeles County. (Cal. Coop. Rpt.).

JUNIPER WEBWORM (Dichomeris marginella) - VIRGINIA - Larvae collected in Culpeper County. (Rowell, Hutcheson, Feb. 4).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Of 50 bags collected in Talladega County, from previously heavily infested junipers, 20 filled with 150-200 eggs; none hatched. (McQueen).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - CALIFORNIA - Medium in azalea plants in Crescent City, Del Norte County. (Cal. Coop. Rpt.).

A WEEVIL (Scyphophorus acupunctatus) - CALIFORNIA - Larvae heavy in roots of agave plants at Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Medium on Ficus sp. nursery stock in South San Francisco, San Mateo County. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Light on privet plants in Arlington, Riverside County. (Cal. Coop. Rpt.).

A PILLBUG (Armadillidium vulgare) - ALABAMA - Causing concern in flower beds. (Barwood et al.).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - MONTANA - Extremely heavy in home 12 miles southeast of Lodge Grass, Big Horn County. Collected January 14, 1964, by Mrs. Walter Miller, Jr. Det. by C. W. Sabrosky. This is a first State record. (Pratt).

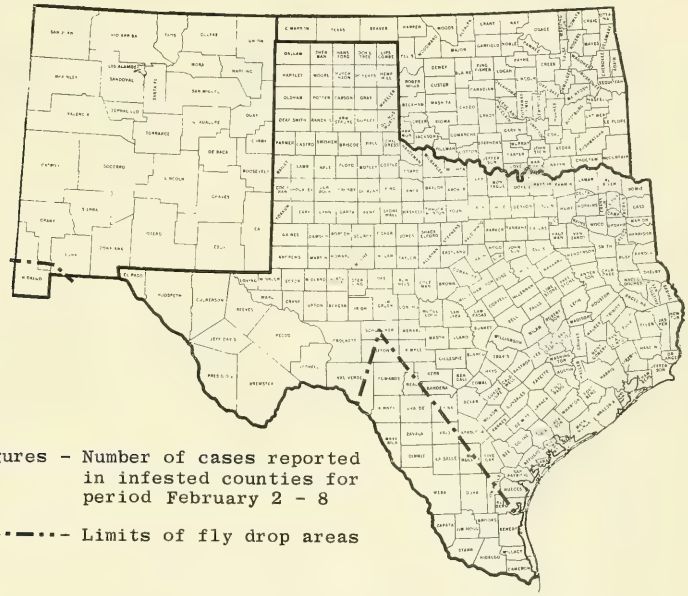
HOUSE FLY (Musca domestica) - ARKANSAS - Adults active in dairies and poultry buildings in Nevada County and noted in Fayetteville area, Washington County. Return of cold weather expected to reduce activity. (Ark. Ins. Sur.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Controls applied to 50 cattle in Emery County. (Knowlton, Olson). OKLAHOMA - Heavy levels of H. lineatum continue throughout State. Averaged 27 per head (ranged 0-62) in long yearling steers in Noble County. Moderate to heavy counts reported in Hughes, Haskell, Bryan, Garvin and Cotton Counties.

CATTLE LICE - OKLAHOMA - Moderate to heavy infestations still reported on cattle in southern and eastern parts of State. Light on cattle inspected in Pushmataha County. (Okla. Coop. Sur.). UTAH - Untreated cattle in Emery County heavily infested; 5,850 treated. (Knowlton, Olson).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

No screw-worm specimens were submitted from the Southwest during the period February 2-8. A total of 69,420,250 sterile flies was released during the period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 2 - 8

-·-·-·- Limits of fly drop areas

HOUSEHOLD AND STRUCTURAL INSECTS

FACE FLY (Musca autumnalis) - NORTH CAROLINA - Nuisance in home in Burnsville, Yancey County; in 8 homes in Leicester Community, Buncombe County, around January 27; det. by D. A. Mount. (Jones, Dillingham).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Extensive infestations noted in stored-cereal products in Tulsa County; reported in stored products in home in Ponca City, Kay County. (Okla. Coop. Sur.). MARYLAND - Moths active inside homes in Harford and Prince Georges Counties. (U. Md., Ent. Dept.).

COCKROACHES - ARIZONA - Various species continue to move into homes and businesses in Pinal and Maricopa Counties due to cool weather. (Ariz. Coop. Sur.).

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Infested stored products in home in Cushing area, north central. (Okla. Coop. Sur.).

WHITE-MARKED SPIDER BEETLE (Ptinus fur) - ALABAMA - Numerous specimens taken from nome in Crenshaw County, apparently feeding on stored products in kitchen. (Knox).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - MARYLAND - Infested hardwood floor in 2-year-old house at Fallston, Harford County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infested furniture in Johnston County home. (Mount).

A GRASS BUG (Arhyssus idendatus) - CALIFORNIA - Adults invading home and causing annoyance on curtains and drapes; medium in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Heavy, causing nuisance in home at Baltimore. (U. Md., Ent. Dept.). VIRGINIA - Adults abundant in and around homes in Christiansburg, Montgomery County (Tarpley, Jan. 20); Front Royal, Warren County (Rowell, Jan. 13); Palmyra, Fluvanna County, (Rowell, Watts, Jan. 17); and Roanoke (Rowell, Jan. 22). NORTH CAROLINA - Nuisance around homes in Person and Stanly Counties. (Reams, Koontz).

FALSE CHINCH BUGS (Nysius spp.) - ARIZONA - Invaded hospital in Yuma County; caused some concern. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - VIRGINIA - Abundant in and around home in Stafford County. (Rowell, Beck; Jan. 16).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - FLORIDA - Infesting wheat and sack of ground feed at 2 locations in Gainesville, Alachua County. (Adkins, Jan. 23).

LESSER MEALWORM (Alphitobius diaperinus) - FLORIDA - Collected in stored oats at De Funiak Springs, Walton County. (Boyd, Jan. 29).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Damaging cowpeas at Gainesville, Alachua County. (Adkins, Jan. 23).

PSOCIDS - OKLAHOMA - Heavy around grain elevator in Tillman County. (Okla. Coop. Sur.).

BROWN SPIDER BEETLE (Ptinus calvipes) - CALIFORNIA - Medium on bone meal in storage in Davis, Yolo County. (Cal. Coop. Rpt.).

A DERMESTID BEETLE (Trogoderma ornatum) - OKLAHOMA - Extensive infestation noted in stored products in Tulsa County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

A MINUTE PIRATE BUG (Orius insidiosus) - TEXAS - Heavy in grain bins in Hale County. (Tex. Coop. Rpt., Smith).

MISCELLANEOUS INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - NORTH CAROLINA - Larvae collected in Bertie County. (Mount).

INTERCEPTIONS

AN ARMORED SCALE (Morganella longispina) - FLORIDA - Dead specimens found on fumigated fruit of sweet orange and Citrus sp. shipped from Haiti at Bradenton, Manatee County, on January 27, 28 and 30. (Fredrick, Swords, Bickner). Collected at Davie, Broward County, February 2. (McLean). This scale insect not known to occur in State. (Fla. Coop. Sur.).

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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VOL. 14 No. 8 February 21, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 February 21, 1964 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREEN PEACH APHID populations beginning to show some increase on sugar beets, vegetable and other host plants in Maricopa and Pinal Counties, Arizona. (p. 94).

Winged TERMITES reported in homes in North Carolina, Maryland and Pennsylvania (p. 96).

EASTERN TENT CATERPILLAR eggs hatching in Gainesville, Florida. (p. 95).

SPECIAL REPORTS

Quarterly Citrus Insect and Mite Outlook (January through March) in Florida. (pp. 93-94).

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southwestern California and Central Arizona. (p. 94). Spring movement to cultivated districts of southwestern California, central Arizona, southern Nevada, southern Utah and western Colorado expected to be heavy, and the movement to central and northern Utah moderate to heavy.

Summary of Insect Conditions in the United States - 1963

Introduction (p. 98).
Crops and Weather - 1963 (p. 98).
Cereal and Forage Insects
Grasshoppers (p. 99).

The Leafhopper Vectors of Corn Stunt and Some Related Species in Southern United States (Homoptera: Cicadellidae). (pp. 105-106).

Reports in this issue are for week ending January 31, unless otherwise indicated.

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Volume 13 of "Insects Not Known to Occur in the United States" is now available on request. This is a compilation of the separates, numbers 150-161, appearing in the Cooperative Economic Insect Report, Volume 13, 1963. Also included in this issue is a consolidated index of the species included in this and previous issues. PPC Division personnel will receive copies through their Regional Offices. Also available, in limited numbers, are Volumes 7, 8, 9, 10, 11 and 12 of "Insects Not Known to Occur in the United States."

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1964

The Weather Bureau's 30-day outlook for the period from mid-February to mid-March calls for temperatures to average above seasonal normals in the northeast quadrant of the Nation. Below normal averages are predicted in States bordering the Gulf of Mexico and also in the western half of the Nation, except for near to above normal in the Northern Plains. For areas not specified near normal temperatures are in prospect. Precipitation is expected to be greater than normal in a broad band extending from New England through the Ohio Valley and Southern Plains into the Southern Rockies and Plateau. Subnormal amounts are indicated for the Pacific Northwest and Northern Plains, with near normal precipitation in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 10

Arctic air poured into the northern Great Plains and Great Lakes region on Monday, February 10. The temperature at National Falls, Minnesota, dropped to 22° below zero. Several inches of snow fell over parts of Missouri and eastward to the middle Atlantic coast. At midweek, a storm in the Pacific northwest brought generous rains to western Washington and Oregon and, as the storm moved inland, snow fell in the higher elevations of those States and eastward to the Rocky Mountains. Meanwhile, a front which streached from north to south across the middle of the Nation, moved eastward causing snow over the middle and northern States and rain over the South. Snow falls of 5 inches or more were common from Missouri eastward and northeastward through the Great Lakes region, the Ohio River Valley and the north and middle Atlantic States. Rains fell from eastern Texas and Oklahoma to the south Atlantic coast. As the weekend approached, snow was falling over the northern Rocky Mountains. Fair weather prevailed over the Great Plains area, precipitation was diminishing and skies were clearing along the Atlantic seaboard. A new storm was developing over the southern Rocky Mountains. By Saturday the storm was producing heavy snow over Nebraska, Kansas, and eastward to Ohio, clogging highways over a 7-State area. Snow accumulated to 8 inches in central Missouri. The snow was accompanied by strong winds in Nebraska and Kansas. Sleet and freezing rain along the southern edge of this area made highway travel hazardous. The fast-moving storm reached New England by Sunday and produced 12 to 18 inches of snow at some inland localities in eastern Massachusetts. Temperatures averaged above normal over the northern Great Plains and below normal over most of the rest of the region. Temperature departures ranged from -8° at Huntington, West Virginia, and -10° at Pocatello, Idaho, to +17° over northeast Montana. Rainfall exceeded 1.00 inch in the extreme Northwest, over north central Missouri, Arkansas and eastward to the North Carolina coast and from Kentucky northeastward to New Jersey. Large areas from the Pacific Ocean to the Great Plains and Great Lakes region and northern New England received less than 0.50 inch. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Counts ranged 0.5-1.0 per linear foot in wheat checked in Hennessey area of Kingfisher County. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Surveys show winter survival 20 percent in Bradley County (southeast) and 16 percent in Washington County (northwest) to February 15. (Ark. Ins. Sur.).

AN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Egg counts moderate to light on alfalfa in Maricopa County. Only an occasional larva has been found. No damage occurred during past week. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adults slowly increasing on alfalfa in Maricopa and Pinal Counties; averaged 16 per 100 sweeps. (Ariz. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Spotted, light infestations continue present in Dona Ana, Chaves, Eddy and Sierra County alfalfa. (N. M. Coop. Rpt.). OKLAHOMA - Checks remain negative in Choctaw County, southeast area. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - No increase found in alfalfa in Maricopa County; cool weather preventing rapid population increases. (Ariz. Coop. Sur.). OKLAHOMA - Light on overwintering alfalfa in Choctaw County, southeast area. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Populations continue generally low throughout State; counts 2-8 per linear foot (one field up to 30) in Garfield County, northwest, 2-15 per foot in Kingfisher County, central, 6 per foot in Jefferson County, south central, and fewer than 10 per foot in Perkins area of Payne County, north central. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light counts of 3-10 per linear foot in Garfield County and 2-10 per foot in Kingfisher County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Counts light; ranged 2-15 per linear foot in wheat fields checked in Garfield and Kingfisher Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light infestations of 6 per linear foot noted in Jefferson County wheat. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

FRUIT INSECTS

Quarterly Citrus Insect and Mite Outlook (January through March) in Florida. This outlook is based on the assumption that weather beyond the period of the current U.S.W.B. 30-day outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Citrus Insect Situation in Florida" published twice a month in this report. Each pest has more or less regular periods of increase and decrease throughout the year. Weather conditions (temperature, rain, humidity) may affect populations directly or indirectly through effects on predators, parasites and tree growth. Departures from the average population level may be caused by conditions that occurred months before. Other fluctuations may reflect recent weather changes. The latter influences can be forecast only to the extent that weather forecasts are available.

CITRUS RUST MITE (Phyllocoptruta oleivora) populations will be below the moderate level, typical of this period. Infestations will be important in about 33 percent of groves; a majority of these will be groves still showing cold damage. CITRUS RED MITE (Panonychus citri) and TEXAS CITRUS MITE (Eutetranychus banksi) infestations will be important only in a few scattered places until March when one or the other of these species will develop heavy populations in about 25 percent of groves. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is expected to be less prevalent than usual and of little concern. GLOVER SCALE (Lepidosaphes gloverii), CHAFF SCALE (Parlatoria pergandii) and YELLOW SCALE (Aonidiella citrina) will remain above normal abundance during the period. Gradual increase will occur, but few infestations will become important until after March. APHIDS will appear on new flush in late February. Infestations will be heavier on groves still recovering from the 1962 cold. WHITEFLIES will be above normal numbers despite a decrease expected in late February. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Severely infesting leaves of Citrus sp. at San Antonia, Pasco County, on February 2. (Barber, Williams).

A LEAF ROLLER (Platynota stultana) - ARIZONA - Larvae continue to cause some damage to young citrus trees in Mesa area of Maricopa County. (Ariz. Coop. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Heavy infestations found on roots of some young apple trees in Coosa County; heaviest infestations in one young untreated orchard. (Sessions).

TRUCK CROP INSECTS

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southwestern California and Central Arizona. Surveys were conducted for beet leafhopper (Circulifer tenellus) during the period January 27 to February 8. Spring movement from the desert breeding grounds to cultivated districts of southwestern California, central Arizona, southern Nevada, southern Utah and western Colorado is expected to be heavy, and the movement to central and northern Utah moderate to heavy if favorable conditions prevail. The southern desert breeding grounds, comprising approximately 50,000 square miles of potential weed host area, were favored with extensive fall rains resulting in widespread host development on an estimated 36,350 square miles. However, scant winter rainfall caused stress on host plants in a few areas. This was especially noticeable south of the 34th parallel. Host plants were found at 70.3 percent of the 10-mile interval sampling points. The average number of beet leafhoppers found in areas where host plants were present was 0.15 per square foot. This report covers only the beet leafhopper situation as found in the area surveyed. It does not have reference to populations that may have overwintered in local breeding areas in northern and eastern Utah and in western Colorado and Nevada. (PPC, West. Reg.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Light to heavy populations damaging cabbage in Hidalgo County. (Tex. Coop. Rpt.; Meisch).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Populations beginning to show some increase on sugar beets, vegetable and other host plants in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Lightly damaged 5 percent of 200 inspected cabbage plants at Sanford, Seminole County. (Desin).

A LEAF MINER - (Liriomyza sp.) - FLORIDA - Damage light on 32 percent of 200 celery plants at Sanford, Seminole County. Most leaf miners very small. Recent rains probably caused decrease in adult populations. Overall appearance of crop good. (Desin).

A WEEVIL (Hyperodes texana) - TEXAS - Of 16 carrot fields examined in an area bounded by highways 281 and 107 from La Feria in Cameron County to La Joya in Hidalgo County, 12 found to be infested with this species. One field had 50 percent of plants damaged and others ranged downward from this level. In general, only larger carrots damaged. (Tex. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Eggs hatching locally on wild cherry and wild plum at Gainesville, Alachua County, on February 7. (Hetrick).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - ALABAMA - Examinations of galls on dogwoods in Etowah, Lee, Tallapoosa and Cherokee Counties shows this midge in pupal stage and awaiting proper temperature for emergence. Heaviest infestations found in mixed stand of hardwood pine and dogwood intermixed. Single or sparsely placed ornamental dogwood plantings on lawns and roadsides only very lightly infested. (McQueen).

SPIREA APHID (Aphis spiraecola) - ALABAMA - Eggs clustered on branches 10-25 percent hatched in Lee, Etowah and Cherokee Counties. Numerous first and second instars feeding on swollen buds, leaflets and early blossoms. Heaviest infestations appearing on Reaves spirea. (McQueen).

PINE BARK APHID (Pineus strobi) - MARYLAND - Heavy on 2 white pines at Lanham, Prince Georges County. (U. Md., Ent. Dept.).

A MAGNOLIA SCALE (Phenacaspis cockerelli) - FLORIDA - Severely infesting leaves of southern magnolia (Magnolia grandiflora) at Daytona Beach, Volusia County. (Pott, Feb. 3).

CAMELLIA SCALE (Lepidosaphes camelliae) - TEXAS - Moderate, widespread infestations reported from camellias in Montgomery County. (McCoy).

BOXELDER BUG (Leptocoris trivittatus) - TEXAS - Heavy, localized infestations reported from boxelder trees in Eastland County. (Cooper).

AN ANNUAL CICADA (Tibicen sp.) - ALABAMA - Second and third-stage nymphs found lightly feeding on tubers of dahlia in Lee County garden; damage to tubers apparently not serious. Nymphs 1-5 per dahlia hill. (McQueen).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Eggs numerous on Norway spruce at College Park, Prince Georges County. (U. Md., Ent. Dept.).

A TUCKERELLID MITE (Tuckerella ornata) - FLORIDA - Severely infesting Carissa grandiflora at Marathon, Monroe County. (Dowling, Jan. 16).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - TEXAS - Infestations in the Jefferson County area have been light. Aedes sollicitans noted around lights on warm evenings. Culiseta inornata has been active and is common in sheltered areas and around lights. Culex spp., mostly C. salinarius, more numerous than A. sollicitans. (Jefferson Co. Mosq. Control Comm.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Controls applied to cattle in Uintah, Daggett, Beaver and Duchesne Counties. (Knowlton, Bendixsen, Esplin, Smith). OKLAHOMA - Grub counts of H. lineatum averaged 4.5 per head in 42 yearling steers checked in Payne County. Light numbers reported from Mayes County, with counts of 3-10 per head noted in 40 percent of cattle checked in Bryan County and 2-15 per head in McCurtain County cattle. Checks in Marshall County averaged 16 per head on yearling cattle. (Okla. Coop. Sur.).

CATTLE LICE - UTAH - Controls applied in Uintah, Daggett, Millard, Carbon, Beaver and Duchesne Counties. Some Millard County cattle conspicuously infested. (Knowlton, Bendixsen, Esplin, Smith). NEW MEXICO - Linognathus vituli collected from calves at ranch near Crossroads, Lea County. (N. M. Coop. Rpt.). OKLAHOMA - Moderate to heavy populations of unspecified species present on cattle checked in McCurtain, Pushmataha, Marshall and Mayes Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate infestations reported from McCurtain and Bryan Counties. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (Reticulitermes spp) - NORTH CAROLINA - Winged adults of R. flavipes received for identification from a Jones County extension agent. (Barnes, Jones). MARYLAND - Winged forms swarmed February 10 in basement of a building at Centreville, Queen Annes County. (U. Md., Ent. Dept.). PENNSYLVANIA - Swarming in homes at Lock Haven, Clinton County, on February 14. (Gesell).

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Complaints of pest intering homes in Salt Lake County received at County Extension office throughout winter. (Knowlton, Parrish). MARYLAND - Caused a nuisance in house at Randallstown, Baltimore County. (U. Md., Ent. Dept.; Feb. 8). PENNSYLVANIA - Entering homes in many locations of State during December, January and February. (Pepper).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryzae) - FLORIDA - Present on grains of corn at Carol City, Dade County. (Hickman).

MISCELLANEOUS INSECTS

MOTHS - ALABAMA - Showing up around night lights in Baldwin County. Some 10-15 observed flying to windows of residences each night, with only an occasional moth being noted further north in central counties and then only on evenings when late evening temperature is 50 to 60 degrees F. Species probably Heliothis zea and various cutworms. (Wilson et al.).

CORRECTION

CEIR 14(5):65 - Citrus Insect Situation in Florida - PURPLE SCALE (Lepidosaphes beckii) infested 76 percent of groves...

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chloridea (Heliothis) virescens (tobacco budworm)	Chloridea (Heliothis) zea (corn earworm)	Earias insulana (spotted bollworm)	Earias vittella (spotted bollworm)	Feltia subterranea (granulate cutworm)	Helicoverpa (Heliothis) zea (corn earworm)	Helicoverpa (Heliothis) zea (corn earworm)	Lampyrea fructigerda (fall armyworm)	Loxostege commiralis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellowstriped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 2/10			BL						2															
Gainesville 2/14			BL						2											3				
GEORGIA																								
Tifton 1/23-29			BL							0	0							0	0					
Tifton 1/30-2/5			BL							0	0							0	0					
Tifton 2/6-12			BL							0	0							0	0					
SOUTH CAROLINA																								
Charleston 2/3-9	28-62	1.25"	BL	2			0		9	0	0	0				0	0	0	0	1			0	
TEXAS																								
Brownsville 2/1-6			4BL	40			8		171		8	192				144	152			120				
Brownsville 2/7-12			5BL	29			97		56		4	47		182		29	51	11		27				

* BL = blacklight; I - incandescent; MV - mercury vapor ; O - other

** alf. - alfalfa; beet - garden beet and/or sugar beet; cole = cole crops (crucifers); cott. - cotton; FC = field corn; grain - small grains; leg. = legumes (unspecified); lett. - lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. - soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. - tomato.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

INTRODUCTION

The summary of insect conditions beginning in this issue and continuing in several succeeding issues of the Cooperative Economic Insect Report was compiled in Survey and Detection Operations from annual summaries that were submitted by State and Federal cooperators. A list of individuals who helped assemble the data will be published after the last section of the summary is published. Survey and Detection Operations is especially grateful to all those individuals who assisted with the preparation of the 1963 summary.

CROPS AND WEATHER - 1963 1/

The 1963 season brought conditions approaching the critical damage point to many parts of the Nation sometime during the growing period. However, relief seemed to come just in time and most crops attained good yields, although hay and pasture output was lowered. Fall-seeded grains got an early start and went into the winter in good shape in most areas. Severe winter weather took a heavy toll in the Central and Southern Plains areas. Spring rainfall was limited and a critically dry area developed in southwestern Kansas, southeastern Colorado, northeastern New Mexico, and the panhandle areas of Oklahoma and Texas. Rains in late May gave a boost to the areas surrounding this dry spot, but came too late to help most acreage in the driest area. Some damage from an unusually late frost about May 21 also lowered prospects for winter wheat in Nebraska and South Dakota. Other areas had generally favorable conditions and winter grains progressed rapidly. Harvest was one of the earliest on record.

Planting of spring crops was completed a week to ten days ahead of the seasonal pattern in most areas east of the Rocky Mountains because soils dried to desirable working condition early in the spring. Crops emerged and got off to a good start, but with less than normal rainfall over much of the Nation, shortages of topsoil moisture began to show up in May.

In the North Central States rainfall continued lighter than usual throughout June. Hay and pasture crops showed ill effects but there was only limited damage to the major row crops. July brought above normal moisture totals at the strategic ear-development stage for corn and boosted the growth of soybeans. Rainfall again dropped below normal in most of the area throughout the rest of the summer and fall. Corn, passing the critical period, continued on to high production levels, but soybeans were unable to reach the full potential of the earlier season growth. A much-delayed frost permitted full maturity of crops and harvest work proceeded rapidly in the dry fall months.

In the North Atlantic States, limited rainfall early in the season brought the threat of a recurrence of the 1962 drought. Timely rains relieved part of the region although eastern Pennsylvania, New Jersey and sections of New England remained dry, lowering crop production and pasture growth. A September frost also caused damage to late crops in parts of the North Atlantic States with some diversion of corn from grain to silage.

The most severe crop losses from lack of moisture occurred in an area centering in Virginia where below normal rainfall prevailed throughout the growing season. Hay and pasture crops were a near failure and corn was shifted from grain to silage and forage uses. Crop output was also reduced in Delaware and Maryland and parts of North Carolina. South Carolina, Georgia, and Florida were dry but received enough rainfall to bring most crops through to a good harvest.

1/ Crop Production, 1963 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1963.

Dryness in the fall held back the development of late season pastures. However, November rains have stimulated hope for fall-seeded grains and pasture crops to relieve the shortage of roughage for winter feeding.

Dry and hot weather in May and early June sapped available moisture and damaged some crops in the Gulf States. Mid-June rainfall brought relief to all except the earliest acreages, and crop production was generally favorable in the South Central States. A dry area, centered in Arkansas in the late summer and fall, lowered the potential for soybeans and other crops. Harvest weather was generally excellent in the South Central area except for some delays in cotton picking in northern Texas because defoliating frosts were late.

The western States entered the 1963 season with threatened shortages of irrigation water in areas depending on stream flow, but summer and fall rains brought above normal precipitation. Although slowed by continued cool weather, crops made good growth and a late frost permitted full development. In spite of the gloomy early season prospects, 1963 production was at high levels in most Western areas.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS

Highlights:

GRASSHOPPERS were not a severe problem generally in 1963, but as the season progressed and dry weather persisted, severe infestations developed in local areas on rangeland throughout the Rocky Mountain area, and it became necessary to treat 498,147 acres in 8 States through cooperatively financed control programs. Grasshopper populations increased significantly during the year in Nevada, and 1963 was another year of serious grasshopper damage in Utah. Crop and range damage from grasshoppers was conservatively estimated to exceed $1,835,000 in Utah. In cropland areas of the Midwest, grasshoppers became a problem in parts of Illinois and Wisconsin and locally in several other States. Drought and near-drought conditions accentuated crop injury in some areas of Wisconsin, although cropping practices and adjacent vegetation influenced the extent of damage. Damage to alfalfa was severe in Green and Dane Counties. In Illinois, feeding damage was evident in many clover and alfalfa fields by late July, especially in the northwest district. An estimated 672,433 acres were treated in Illinois, mainly in the northwest, west and northeast districts. A map showing the results of the adult survey for 1963 was issued in CEIR 14(4).

Populations of MIGRATORY GRASSHOPPER (Melanoplus sanguinipes), PACKARD GRASSHOPPER (M. packardii), TWO-STRIPED GRASSHOPPER (M. bivittatus), RED-LEGGED GRASSHOPPER (M. femurrubrum) and CLEAR-WINGED GRASSHOPPER (Camnula pellucida) have subsided considerably during the past two seasons in WASHINGTON. The 1963 fall adult survey revealed only 22,000 acres of infested rangeland, occurring in Ferry and Stevens Counties. In OREGON , grasshoppers infested 455,900 acres during the year, of which 12,000 acres in Harney County were treated. The dominant species involved was clear-winged grasshopper. Grasshopper populations were generally low over most of Oregon during 1963. Grasshopper surveys during the spring in IDAHO indicated economic infestations covering 630,000 acres on private, State and Federal rangelands including National Forest areas. Adjacent croplands were frequently subject to possible invasion. Population counts ranged from a low of 20 grasshoppers per square yard to 400. The dominant species in Idaho included migratory grasshopper, two-striped grasshopper, Packard grasshopper and Oedaleonotus enigma. Controls were effectively used on 299,856 acres in the various Idaho counties as follows: Valley - 5,600; Gem - 500; Adams - 4,000; Lincoln - 78,468; Minidoka - 24,000; Blaine - 20,486;

Elmore - 42,000; Ada - 5,000; Boise - 37,972; Jerome - 33,000; Gooding - 48,830. Lands treated may be placed in these classifications with total acreages shown: U.S. Forest Service - 70,294; private range - 32,688; State lands - 14,520; Bureau of Land Management - 181,654; State Fish and Game Department - 700. Migratory grasshopper was the most numerous in 10 years in ALASKA. Only cool June temperatures saved a severe local outbreak.

High populations of grasshoppers were not reported to any great degree in MONTANA until late July, when some of the range species began to be noticed in northern areas. Mixed species, with only migratory grasshopper outstandingly predominant, occurred in a hit and miss arrangement over several sections of Phillips and Blaine Counties. Still later, some rather heavy populations of similar mixtures were reported in Glacier County, and in an area west of Great Falls, where rainfall was light and grass was in short supply, small spots of high concentrations were noted. These ran high to Aulocara elliotti and Drepanopterna femoratum. Probably the most outstanding feature about the grasshopper situation in Montana in 1963 was that grasshoppers were fewer and less widespread than any year since grasshopper observations have been made. The 1963 adult survey in Montana showed 5,787,000 acres of rangeland infested with economic numbers, the greatest acreage among the Western States. In WYOMING, several infestations of range grasshoppers occurred during the year. The number of acres of rangeland cooperatively treated are as follows: Goshen-Platte Counties - 93,061; Hot Springs County - 3,524; Niobrara County - 45,308. The 1963 grasshopper adult survey revealed 3 times more infested acreage in 1963 than was found in 1962. A total of 977,500 acres of rangeland was found infested with grasshoppers numbering over 7 per square yard.

The species of grasshoppers reported to be present in areas of COLORADO, where populations approached economic levels, include two-striped grasshopper, migratory grasshopper, red-legged grasshopper, DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis), Aulocara elliotti, Amphitornus coloradus and clear-winged grasshopper. The early spring survey for grasshopper nymphs in Colorado indicated that control measures might be necessary in Huerfano, Archuleta, Boulder, Larimer and Dolores Counties. The nymphal population in Huerfano County disappeared following a hot, dry period and grass growth was not sufficient to maintain a grasshopper population. In Archuleta County, a small acreage was sprayed in the south part of the county in cooperation with a control program in New Mexico. Mountain meadow infestations in Archuleta County were scattered and no control program was undertaken. In the Boulder-Larimer County area, landowners decided not to form a pest district and, as the season developed, the grasshoppers in the area were reduced by natural causes 50 to 75 percent. In general, grasshopper populations were light throughout Colorado on rangeland and no buildup is expected in 1964. The loss of grass due to grasshoppers in 1963 was negligible and an estimated percentage value would not be realistic due to the nature of the growing season. Control of grasshoppers on wheat was undertaken in Dolores County in the spring and in Washington County in the fall. Light populations of grasshoppers could be found in the borders of corn fields, but the loss was minor.

Serious grasshopper damage occurred during 1963 in UTAH. The most extensive outbreaks occurred in Millárd, Juab, Sanpete, San Juan, Sevier, Cache, Box Elder and Iron Counties, and quite generally along the "Wasatch Front." Crop and range damage from grasshoppers is conservatively estimated to exceed $1,835,000. Had it not been for the excellent range conditions due to the abundance of spring moisture, both crop and range damage would have been much more severe. The farmer, rancher, orchardist and home gardener control programs are estimated to have exceeded 240,000 acres sprayed for grasshopper control. In addition, an estimated 2,309 acres were sprayed in the Fish Lake National Forest area. Grasshoppers at the end of 1963 threatened damage to at least 425,250 acres of cropland and 538,300 acres of rangeland during 1964, a total of 963,550 acres.

Grasshopper populations increased significantly during 1963 in NEVADA, with most increases occurring in Elko, Eureka, Humboldt, Lander and Pershing Counties. Aulocara elliotti, clear-winged grasshopper, migratory grasshopper, Packard grasshopper and Oedaleonotus enigma were the dominant species. Approximately 4,000 acres of crested wheatgrass and adjacent rangeland were treated in Humboldt County in July. In several counties, varying amounts of damage was done to cultivated crops and some controls were applied. The 1963 adult grasshopper survey indicated infestations of 334,240 acres, or a three-fold increase over 1962, with these infestations located primarily in the above-listed counties. A medium infestation of a LONGHORN GRASSHOPPER (Idiostatus inermis) occurred on rangeland in southwestern Washoe County, Nevada, in August and a medium infestation of Idiostatus sp. occurred in Humboldt County in July and August.

The grasshopper situation in CALIFORNIA was of minor importance with very few instances of damage being reported. Populations over the State were comparatively light. The fungus, Entomophthora grylli, which was present and active during 1961-1962, was not evident to any extent in 1963. No large scale treatment was necessary, but local areas were treated. In February, egg beds in the Warner area of San Diego County showed evidence of heavy infestations which developed in April. During June, July and August, populations varied. Medium populations developed on seed alfalfa and clover in the Tehama-Red Bluff area of Tehama County, and infestations occurred on rangeland in Shasta, Humboldt, San Diego, Los Angeles, Plumas, Sierra, Fresno and Calaveras Counties. Although there were some problems, no large scale treatment was necessary.

Populations of clear-winged grasshopper built up in the Cuba area of Sandoval County, NEW MEXICO, where they damaged native grasses and plants. There was some voluntary treating done in this area. Many species of grasshoppers caused locally heavy damage to rangeland in areas of central, north central and northwest TEXAS, but they did not cause damage in widespread areas. In OKLAHOMA, grasshopper nymphs became active in early May and adults reached their peak activity during July. Populations became heavy in localized areas of south central, southwest and west central Oklahoma, but no general control programs were initiated. Limited damage was noted around margins of fall-sown wheat in the northwest. The dominant species were two-striped grasshopper, Packard grasshopper, differential grasshopper, Melanoplus occidentalis, Ageneotettix deorum and Amphitornus coloradus.

Grasshoppers continued scarce in western KANSAS during 1963, but populations built up in the eastern part of the State. Field margins of corn and alfalfa were damaged in local areas in the eastern portion of Kansas and insecticides were applied in some cases. The dominant species were red-legged grasshopper, migratory grasshopper and differential grasshopper. In MISSOURI, the grasshopper hatch was interrupted in May by an unseasonable cool period. This interruption extended the length of hatching time by at least two or three weeks. Non-economic populations (5-10 per square yard in margins) were found in the southeast and south central areas. Light populations of 3-7 per square yard in fields and 11-20 per square yard in margins were found in the other areas of Missouri, except for moderate populations of 8-14 per square yard in fields and 21-40 per square yard in margins in the southwest and southeast areas. Heavy damage and high populations could be found in isolated fields and small areas throughout Missouri. The most damage was observed in the southwest area where drought conditions existed through the late summer and early fall. Grasshopper populations throughout the State were slightly lower in 1963 than in 1962. The species observed throughout the season, listed in order of their abundance, were red-legged grasshopper, migratory grasshopper, differential grasshopper and two-striped grasshopper.

Scattered cropland infestations of grasshoppers in the eastern half of NEBRASKA were about the same as in 1962. Areas involved were along the Missouri River Valley on the Iowa and South Dakota border west to Cherry County, the eastern half of the Platte River Valley and smaller areas in the southern part of Nebraska. Infestations have increased in size and severity in the panhandle in

both crop and range lands. Moderate to threatening infestations occur in the Pine Ridge and Wild Cat Ridge areas. Egg counts for the most part indicate as high or higher populations than adult surveys indicated. In SOUTH DAKOTA, the spring grasshopper egg development survey conducted during the middle of April found eggs to generally be in the eye-spot stage of development. Eggs during this time were mainly in good condition with bee fly and carabid predators numerous in some egg concentrations. The grasshopper hatch in South Dakota started around May 15. Grasshopper nymphs in the first through third stages were found in Haakon and Custer Counties at this time. "Hopper" populations were considered noneconomic throughout South Dakota until around July 1 when some "hot spots" began to develop. Populations continued to increase throughout the summer, with the adult survey having several large areas in the threatening to severe category. The grasshopper egg survey compared favorably to the summer adult survey (high concentrations in the north central area), with egg parasites generally located in abundance throughout the State. In NORTH DAKOTA, rangeland grasshoppers were mostly light during 1963, but threatening numbers were found in some areas. Migratory grasshopper, Ageneotettix deorum and Aulocara elliotti were the main species involved. The dominant cropland species in North Dakota were two-striped grasshopper, red-legged grasshopper and migratory grasshopper. However, Packard grasshopper, clear-winged grasshopper, Melanoplus dawsoni and differential grasshopper were abundant in some areas. Infestations ranged from noneconomic to threatening. Most of North Dakota had light infestations, but isolated areas showed heavy to severe infestations. Parasitism of eggs in the north central and central areas by bee flies and carabids averaged 6 percent. Considerable mortality of adults due to the fungus, Entomophthora grylli, was observed in the southwest. Considering the entire State, grasshoppers did not pose a serious problem in North Dakota this past season.

After a cool spring in MINNESOTA, weather conditions turned warm and dry from June to the middle of July. In eastern Minnesota, little or no rain fell for six weeks. This was ideal for grasshopper egg hatch and nymphal development. Areas with threatening or high infestations remained much the same as in 1962. The only area showing an appreciable grasshopper population increase was in parts of Kandiyohi, Meeker and Wright Counties in the central district. Fields with threatening to severe infestations were most numerous in central and east central counties and, to a lesser extent, in southeast, west central and northwest counties. In all counties having economic grasshopper populations, infestations continued to be scattered and localized. Alfalfa was the principal habitat, but roadsides, field margins and soil bank land were important in some areas. Red-legged grasshopper was the dominant species in Minnesota. An increase of differential grasshopper was noted throughout the southern half of the State. This species was of economic importance in roadsides and field infestations in the west central district. Generally, the acreage treated for grasshoppers was very limited. There was a marked decrease in migratory grasshopper populations, and clear-winged grasshopper was extremely rare in 1963. Two-striped grasshopper was dominant in Kittson and Marshall Counties, but elsewhere it represented only a small percentage of the grasshopper population. Packard grasshopper was of concern only in the light-soil areas of the State; populations were down. In late August and September, fungus disease began to show up. All species of grasshoppers were affected to some extent, but differential grasshopper seemed most prone. Fields differed greatly as to the incidence of disease.

In WISCONSIN, the more outstanding injury to crops by grasshoppers occurred in areas containing the highest number of grasshoppers, although equally as severe damage took place in areas with lower populations. Drought and near-drought conditions accentuated crop injury in some areas, although cropping practices and adjacent vegetation influenced the extent of damage. Migrations of grasshoppers were minimal and the majority of feeding occurred on alfalfa, grasses, corn and soybeans. Fall rains stimulated growth and late-season damage was not consequential. The grasshopper most commonly present in 1963 in Wisconsin was red-legged grasshopper, although differential grasshopper comprised better than 50 percent of the grasshopper population in certain southern areas of the State.

Differential grasshopper was most frequently encountered in corn fields, and CAROLINA GRASSHOPPER (Dissosteira carolina) was most frequent species found feeding in tobacco and soybean fields. Red-legged grasshopper eggs began hatching the first week of June in central Wisconsin, about 5 days earlier than in 1962. A delayed hatch occurred near the end of July as populations of fourth and fifth instars were commonly interspersed with first and second instars. Females containing eggs were observed as late as November 19. Melanoplus confusus eggs hatched on April 20, 10 days earlier than in 1962. Maturation occurred by the second week of June. The first mature overwintering Pardalophora apiculata was observed on April 26 in Wisconsin, 5 days earlier than in 1962. First instars of migratory grasshopper appeared the second week of May, and first instars of two-striped grasshopper appeared the second week of May. Populations of latter species became abundant enough in the first week of July to necessitate treatment in Adams and Waushara Counties. Eggs of differential grasshopper hatched by the first week of June. In summary, grasshoppers, particularly red-legged grasshopper, caused severe damage to alfalfa in Green and Dane Counties.

The grasshopper parasite and predator study that was conducted in Wisconsin indicated that in general black blister beetle (Epicauta pennsylvanica) activity was most pronounced in the southern 3 tiers of counties and that there was a correlation between high populations of parasites and predators and high as well as low numbers of grasshoppers. In areas where grasshoppers were scarce, these biological agents were in many instances responsible, arising from the preceding year's population. In instances where grasshopper populations are presently high, it can be speculated that a decrease in the succeeding year's grasshopper picture will occur. It would appear, from the results of fall observations and experience during the season, that populations of grasshoppers were higher and damage more acute in a few areas than in previous years. A general increase throughout Wisconsin was evidenced although the areas which perennially experience grasshopper problems changed little. Mild temperatures and light rainfall in the fall offered ideal conditions for egg laying, although the high numbers of biological agents should take their toll.

The dominant species of grasshoppers in ILLINOIS were red-legged grasshopper, differential grasshopper and migratory grasshopper. Damage to pastures and marginal rows of soybeans began to show up in early July, mainly in the west and west-southwest districts. By late July, feeding damage was evident in many clover and alfalfa fields, especially in the northwest district. Some fields had 50 to 60 grasshoppers per square yard. An estimated 672,433 acres were treated, mainly in the northwest, west and northeast districts. The annual adult survey showed moderate populations in most of the northwest district, along with parts of the northeast, west, central and east districts which had light infestations. The remainder of the State had noneconomic populations except for a small light infestation in the southeast district. Some grasshopper damage occurred in IOWA during 1963. Counts during early July ranged 5-30 per square year in alfalfa, red clover and pastures and 10-50 per square yard in fencerows in the southern part of the State. The adult survey showed populations to be mostly light or noneconomic, with a few western and northeastern areas having moderate populations.

A late summer survey in MICHIGAN showed that red-legged grasshopper continued its downward trend. It is predominantly found on the heavier soils of northern Lower Michigan and the Upper Peninsula . Migratory grasshopper, which is found predominantly on the lighter soils of northern Lower Michigan and the Upper Peninsula, continued a low population trend of former years. Differential grasshopper was relatively low in number and occurred in southern counties of the Lower Peninsula of Michigan. In OHIO, red-legged grasshopper and differential grasshopper began building up in numbers during August, reached their peak in middle September and decreased considerably in early November. Heaviest populations in the State were observed in Pickaway, Ross and Fayette Counties in the central and south central parts of the State. In Ross County, Ohio,

soybean plants were 35 percent defoliated and field corn 45 percent defoliated along the outer rows of a few fields. Counts averaged 15-20 grasshoppers per square yard along the grassy borders of roadsides. Differential grasshopper caused heavy feeding injury to a field of soybeans in Sussex County, DELAWARE, and Melanoplus spp. nymphs were very numerous in and near several hay fields in Anne Arundel and Queen Annes Counties, MARYLAND.

MORMON CIRCKET (Anabrus simplex) remains at a very low level throughout the historically infested areas of WASHINGTON; only an occasional solitary cricket was collected. Surveys during the spring in IDAHO disclosed one area along the Adams-Valley-Gem County line southwest of Cascade. In this area, Mormon cricket averaged 7-10 per square yard over 10,000 acres. The pest was interspersed with various species of grasshoppers. Control work was effected by the use of spray, since grasshoppers were also involved. A total of 10,100 acres was treated in the following Idaho counties: Valley - 5,600; Gem - 500; Adams - 4,000. This is the same area reported treated for grasshoppers in the State. A second economic Mormon cricket area of approximately 600 acres located between Bennington and Montpelier in Bear Lake County was effectively treated by ranchers. Mormon cricket populations were generally low in previously infested areas of OREGON due to inclement weather during the spring and early summer. However, infestations increased slightly in 1963 in NEVADA. Surveys showed that 33,000 acres are infested in Elko, Eureka, Humboldt, Lander, Pershing and Washoe Counties. In UTAH, baiting for control was applied to 2,000 acres in San Juan County, 800 acres in Tooele County and 2,000 acres in the south Kanosh area of Millard County. The Mormon cricket had been expected to be a threat to large acreages of rangelands in the Bear Top Mountain area of Daggett County, Utah, in 1963. Fortunately, numbers turned out to be too light to justify a major control program in the area.

The Leafhopper Vectors of Corn Stunt and Some Related Species in Southern United States (Homoptera: Cicadellidae).

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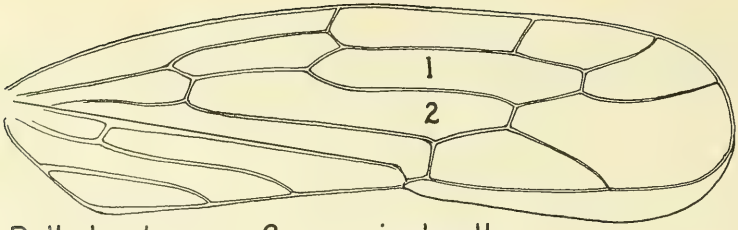
The known vectors of corn stunt are two species of leafhoppers, Dalbulus maidis (DeLong & Wolcott) and Dalbulus elimatus (Ball). D. maidis is the more widely distributed species and will probably prove to be the more important vector at least in the United States. Both species were formerly in the genus Baldulus and much of the published literature treats them with this generic name.

D. maidis. The basic color is some shade of yellow or greenish-yellow with the only distinctive markings occurring as black spots on the crown, one above each ocellus. The forewings are yellowish subhyaline with the veins lighter. The length is about 4 mm. Distributional records in the U. S.: Arizona (Patagonia, Sedona, Tucson); Arkansas (Gould); California (Alhambra, Colton, Temple); Florida (Sanford); Missouri (Joplin); North Carolina (Raleigh); and Texas (McAllen, Nueces County, Brown County, Richland Springs). It is also found in the West Indies, Central and South America.

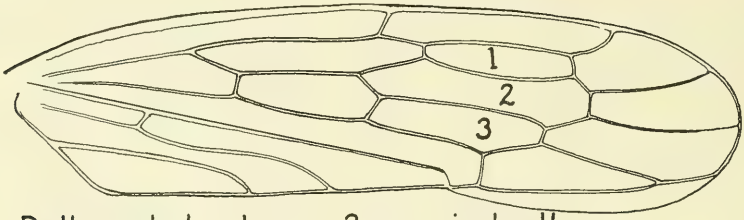
D. elimatus. The basic color is pale brown or brownish-yellow with the only distinctive markings occurring as black spots on the crown, one above and one below each ocellus. The pronotum frequently has five more or less well-defined pale longitudinal stripes. The forewings are pale brown subhyaline with the veins lighter. The length is about 4 mm. Distributional records in the U. S.: New Mexico (Mesilla Park). It is also found abundantly in Mexico.

The following key and illustrations will provide a means for the field worker to separate Dalbulus maidis (Delong & Wolcott) and Dalbulus elimatus (Ball) from some of the more common similar species. All of the characters used in the key can be seen with an ordinary hand lens. Large green, black, dark brown, or more elaborately patterened leafhoppers can be automatically eliminated before using the key. All of the species included in the key are 4 mm. or less in length and are basically yellow, yellowish-green, or light brown in color.

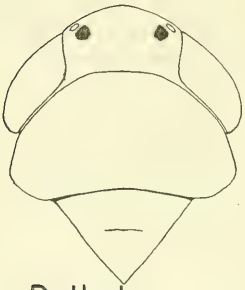
1. Forewing with three preapical cells; markings of crown consisting of four dark spots along anterior margin 2
   Forewing with two preapical cells; markings of crown, when present, consisting of two dark spots along anterior margin 4
2. All spots on crown of about equal size or those at apex slightly larger than those near each ocellus ..... Graminella nigrifrons (Forbes)
   All spots on crown not of equal size, those at apex smaller than those near each ocellus 3
3. With a distinct brown band across hind margin of pronotum; spots near each ocellus much larger than spots at apex, no additional markings on crown ..... Graminella villicus (Crumb)
   Without a band of any sort across hind margin of pronotum; spots near each ocellus slightly larger than spots at apex, additional markings on crown ..... Deltocephalus sonorus Ball
4. Length of crown uniform, without dark spots on anterior margin ..... Balclutha spp.
   Length of crown greater at middle than next to eye, with dark spots on anterior margin 5
5. With a dark spot above and below each ocellus .... Dalbulus elimatus (Ball)
   With a dark spot only above each ocellus ..... Dalbulus maidis (DeLong & Wolcott)



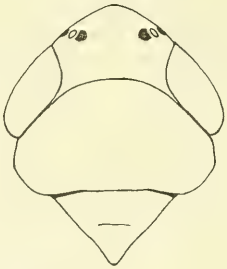
Dalbulus type - 2 preapical cells



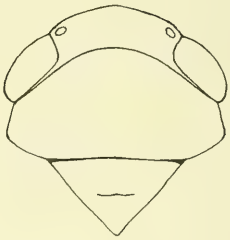
Deltocephalus type - 3 preapical cells



Dalbulus maidis

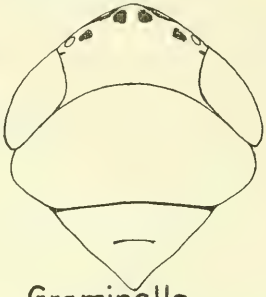


Dalbulus elimatus

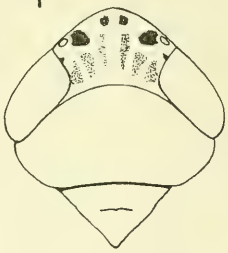


Balclutha sp.

Graminella villicus



Graminella nigrifrons



Deltocephalus sonorus

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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VOL. 14 No. 9 February 28, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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Plant Pest Control Division
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United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 February 28, 1964 Number 9

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SPOTTED ALFALFA APHID damage appearing in some alfalfa in Yuma and Maricopa Counties, Arizona. Populations advanced to upper leaves in some Yuma County fields. GRAIN APHIDS continue low or noneconomic in Southwest. (p. 109). WINTER GRAIN MITE medium to heavy and damaging to oats in Denton and Collin Counties, Texas; over 6,000 acres treated. (p. 110).

POTATO PSYLLID increasing rapidly on Lycium spp. and other favorable weed hosts in Pinal and Maricopa Counties, Arizona. (p. 111).

WESTERN BARK BEETLE causing considerable damage to ponderosa pines in areas of Stanislaus National Forest, and spotted infestations of this species, in combination with ENGRAVER BEETLES (Ips sp.), killing ponderosa pines in several locations in Yuba and Calaveras Counties, California. (p. 112).

Many heavy infestations of CHICKEN BODY LOUSE being reported in northwest Arkansas. (p. 113).

DETECTION

Two rarely collected FLOWER FLIES, Psilota buccata and Volucella anastacia, reported from Florida. (p. 115). YELLOW SUGARCANE APHID (Sipha flava) reported for the first time in Woods County, Oklahoma. (p. 109).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 114).

Summary of Insect Conditions in the United States - 1963

Cereal and Forage Insects (continued).
Small Grain Insects (p. 118).
Corn, Sorghum, Millet and Sugarcane Insects (p. 124).

Survey of Parasites of the Alfalfa Weevil in Western Massachusetts. (p. 138).

Reports in this issue are for week ending February 21 unless otherwise indicated.

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Volume 13 of "Insects Not Known to Occur in the United States" is now available on request. This is a compilation of the separates, numbers 150-161, appearing in the Cooperative Economic Insect Report, Volume 13, 1963. Also included in this issue is a consolidated index of the species included in this and previous issues. PPC Division personnel will receive copies through their Regional Offices. Also available, in limited numbers, are Volumes 7, 8, 9, 10, 11 and 12 of "Insects Not Known to Occur in the United States."

Separates of "The Leafhopper Vectors of Corn Stunt and Some Related Species in Southern United States (Homoptera: Cicadellidae)" are also available upon request. This article was published in CEIR 14(8):105-106.

WEATHER OF THE WEEK ENDING FEBRUARY 24

A disturbance, centered over the northern portion of the Gulf of Mexico, produced rains over the eastern part of the southern Great Plains early in the week. New Orleans, La., received 1.15 inches on Monday, February 17. A front stretching from North Dakota to Lake Superior produced a scattering of light snow flurries over the northern Great Plains. Light rains fell in the Far Northwest. Mostly fair weather prevailed elsewhere.

The storm that had been centered over the Gulf of Mexico intensified and moved quickly up the Atlantic Seaboard. It produced rain and drizzle over the Southeastern States and heavy snow over much of the Northeast. By Wednesday, Harrisburg, Pennsylvania, was blanketed by about 20 inches of snow and snow continued to fall as the storm moved further up the coast.

By Wednesday evening, a new storm was gathering force in the Rocky Mountains. Winds gusted to 60 m.p.h. as the storm spread southward through the northern and central Rockies and adjacent Great Plains. Snow, mostly light flurries, fell over most of the northern two-thirds of the Country from the Rocky Mountains eastward on Wednesday and Thursday. A storm developed over southeastern New Mexico and moved eastward producing snow flurries from New Mexico eastward through Texas and drenching rains over parts of south Texas. Snow flurries were seen as far south as Houston and Galveston, Texas.

The coldest weather of the week came to the midsection of the Nation over the weekend as a mass of arctic air poured into the Dakotas and Minnesota from Canada. Snow and dust, blown by winds reaching 45 m.p.h. reduced visibilities to 1/4 mile at times in the Dakotas and Minnesota. Temperatures plunged to 16° below zero at several locations in North Dakota and at International Falls, Minnesota. Chicago, Illinois, registered 2° above zero and Fort Wayne 1° below zero on Saturday. By midday Sunday the leading edge of the cold outbreak extended from Texas to Lower Michigan and by Monday morning a new storm center was intensifying in southern Saskatchewan, ready to bring more subzero cold into the northern Rockies and Great Plains.

Temperatures for the week averaged above normal along the Pacific Ocean and along the Canadian Border from Washington to Lake Huron and below normal over the rest of the United States. Temperatures averaged more than 10° below normal over much of the southern Rocky Mountains and southern Great Plains. Temperature departures ranged from -12° at Lubbock, Texas, and Mobile, Alabama, to +12° at Havre, Montana.

Wide areas from California to the Great Lakes received no precipitation or only light sprinkles or snow flurries. A few scattered areas in Texas received more than 0.50 inch. Most of the area southeast of a line from Lake Charles, Louisiana, to southern New York received more than 0.50 inch. The heaviest precipitation, generally exceeding 2.00 inches, fell over southern Georgia and southern South Carolina. Two of the most generous weekly totals were 3.25 inches at Tallahassee, Florida, and 3.51 inches at Savannah, Georgia. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Damage appearing in some alfalfa in Yuma and Maricopa Counties. Populations advanced to upper leaves in some Yuma County fields. (Ariz. Coop. Sur.). OKLAHOMA - Only occasional specimens found in overwintering alfalfa in Choctaw County (southeast). (Okla. Coop. Sur.). KANSAS - None found on alfalfa in south central or southwest areas. (Peters).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Increasing in Yuma and Maricopa Counties; ranged 100-120 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Has been a minor problem on seedling alfalfa in Artesia area, Eddy County. Cold weather apparently major factor in preventing buildup. (N. M. Coop. Rpt.). OKLAHOMA - Light numbers noted in few fields of winter peas in northwest area; limited reproduction occurring. Checks in alfalfa in Choctaw (southeast), and in Wagoner and Muskogee Counties (east central), negative. (Okla. Coop. Sur.). KANSAS - None found in alfalfa in south central or southwest areas. (Peters).

LYGUS BUGS (Lygus spp.) - ARIZONA - Counts continue low in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Counts in central and northwest counties ranged from only an occasional larva to counts of 0-2 per linear foot. Areas in Grant County which had economic infestations last season have not reached this level of infestation. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae increasing in alfalfa in Yuma, Maricopa and Pinal Counties. Counts per 100 sweeps ranged 20-25 in Yuma County and 12-15 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). CALIFORNIA - Larvae light on alfalfa in Fresno and Coalinga, Fresno County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - CALIFORNIA - Larvae light on alfalfa leaves in Coalinga, Fresno County. (Cal. Coop. Rpt.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - No increase noted in alfalfa in Yuma and Maricopa Counties. Cool weather continues to keep populations at noneconomic level. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Populations remain light in small grains in northern Eddy and Chaves Counties; ranged 12-15 per linear foot. (N. M. Coop. Rpt.). OKLAHOMA - Populations continue noneconomic throughout State. Averaged fewer than 10 per linear foot in all checks conducted; most counts fewer than 5 per linear foot. Negative in considerable number of fields surveyed. Surveys were made in Logan, Kingfisher, Blaine, Major, Alfalfa, Woods, Garfield, Grant, Tulsa, Wagoner, Mayes, Muskogee and Pittsburg Counties. (Okla. Coop. Sur.). KANSAS - None found south central and southwest areas. Dry conditions earlier in season kept wheat plants from making good growth and snow cover has been limited; consequently, conditions have not been favorable for overwintering. (Peters).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Infestations low in all central and northwest counties surveyed; all counts fewer than 10 per linear foot. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts negative in all fields checked in central and northwest areas. (Okla. Coop. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - OKLAHOMA - Light numbers noted in field of wheat checked in Woods County. This is a new county record. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium to heavy and damaging oats in Denton and Collin Counties; over 6,000 acres in area treated. (Turney). OKLAHOMA - Generally light, scattered infestations noted in Logan, Kingfisher and Grant Counties. (Okla. Coop. Sur.).

A CENTIPEDE (Geophilomorpha sp.) - CALIFORNIA - This pest and crane fly larvae (Tipula sp., not simplex) medium in barley field in Livermore, Alameda County. (Cal. Coop. Rpt.).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Light to heavy, widespread populations causing considerable concern to residents of Robertson County. (Smith).

A SCALE INSECT - TEXAS - Heavy, widespread populations of an undetermined species reported on St. Augustine grass lawns in Live Oak County. (Van Zandt).

FRUIT INSECTS

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Additional survey and inspection of commercial apple orchards in Coosa County revealed very heavy infestations on roots in untreated orchards. No damage noted to root systems in 2 orchards receiving controls. (Sessions).

SHOT-HOLE BORER (Scolytus rugulosus) - MARYLAND - Severe in bark and wood of peach tree at Havre de Grace, Hardford County. (U. Md., Ent. Dept.).

A LONG-HORNED BEETLE - MARYLAND - Larvae of undetermined species infesting bark and wood of peach tree at Havre de Grace, Harford County. (U. Md., Ent. Dept.).

OBSCURE SCALE (Chrysomphalus obscurus) - TEXAS - Heavy on 300 pecan trees in 900-tree orchard in Comanche County. (Meisch).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Numerous larvae, apparently reaching full growth, still being found in old pecan and hickory nut shucks under trees in central counties. Tramping by grazing cattle and personnel harvesting nuts, along with late fall plowing in some orchards, has reduced extremely high populations that existed during October and November 1963, to some extent. (McQueen).

LESSER MEALWORM (Alphitobius diaperinus) - CALIFORNIA - Adults heavy in bark of avocado in Riverside, Riverside County. (Cal. Coop. Rpt., Feb. 14).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Light on leaves of avocado at Orange City, Volusia County, February 5. This is a new Department of Plant Industry host record for this species. (Roberts).

Citrus Insect Situation in Florida - Mid-February - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 58 percent of groves (norm 64 percent); 43 percent economic (norm 40 percent). Citrus rust mite on fruit infested 44 percent of groves (norm 51 percent); 24 percent economic (norm 31 percent). Leaf infestations are near normal level and fruit infestations are low. Recent increasing trend will continue. Highest districts are west, north and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 37 percent of groves (norm 19 percent); 13 percent economic (norm 5 percent). Population is above low February level of all prior years. Increase is expected but few infestations will become heavy. Highest districts are west and east. CITRUS RED MITE (Panonychus citri) infested 41 percent of groves (norm 56 percent); 20 percent economic (norm 28 percent). Statewide population below average and at low level but increasing. Highest districts are west, central and north. PURPLE SCALE (Lepidosaphes beckii) infested 73 percent of groves (norm 79 percent); 7 percent economic (norm 16 percent). Population near average; little change expected; infestation light in all districts. GLOVER SCALE (L. gloverii) infested 74 percent of groves (norm 24

percent); 12 percent economic (norm 1 percent). Population above average; slight increase expected. Highest districts east and south. CHAFF SCALE (Parlatoria pergandii) infested 95 percent of groves (norm 41 percent); 16 percent economic (norm 1 percent). Population above average; little change expected. Highest districts east, central and south. YELLOW SCALE (Aonidiella citrina) infested 41 percent of groves (norm 8 percent); 9 percent economic (norm 1 percent). Population above average; decrease expected. Highest districts south and central. BLACK SCALE (Saissetia oleae) infested 21 percent of groves (norm 17 percent); 5 percent economic (norm 5 percent). Population has dropped to normal low level; little change expected. All districts low. WHITEFLIES decreased but are still above normal abundance. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COTTONY CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Heavy on citrus locally in Spring Valley, San Diego County. (Cal. Coop. Rpt., Feb. 14).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Infested citrus in nurseries at several localities, but most severe at Dade City, Pasco County, where 10,000 plants generally infested (Williams, Feb. 14), and at Lake Jem, Lake County, where 100 plants severely and generally infested (Brown, Fatic; Feb. 12).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Medium to extremely heavy populations on tangerine fruit causing severe damage and scarring of fruit in northern portion of San Diego County. Some damage to navel and Valencia oranges also occurring. Most damage occurring to highly colored fruit. This damage unusual for this species. (Cal. Coop. Rpt.).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - CALIFORNIA - Heavy on roots of muscat grape in vineyard in Madera, Madera County. (Cal. Coop. Rpt., Feb. 14)

TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Increases in larval numbers noted on lettuce in Yuma County; averaged 8-10 per 100 plants. (Ariz. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - CALIFORNIA - Light on sugar beets in Imperial, Imperial County. (Cal. Coop. Rpt.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Spotted infestations noted on lettuce in Maricopa and Pinal Counties. Counts per 100 plants average 5-7 and range 2-35. (Ariz. Coop. Sur.). CALIFORNIA - Populations of this species and Udea profundalis light on sugar beets in Firebaugh, Fresno County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Noneconomic numbers noted on lettuce in Maricopa, Pinal and Yuma Counties. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Showing marked increases on lettuce in Yuma County and on lettuce and sugar beets in Maricopa County. (Ariz. Coop. Sur.). FLORIDA - General on potato at Homestead, Dade County, during January and February. (Wolfenbarger).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Adults medium on cabbage in Arlington, Riverside County. (Cal. Coop. Rpt.). GEORGIA - Light on cabbage in southern part of State. (Johnson).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Increasing rapidly on Lycium spp. and other favorable weed hosts in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

THRIPS - IDAHO - Attacking cabbage in farm storage near Fruitland, Payette County. Evidence indicates cabbage infested in field and population continued in storage. Some adults and small colonies found in center of heads, with high population under outer leaves. (Scott).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Infesting leaves of potato at Homestead, Dade County. (Wolfenbarger).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco in the plant bed throughout southern part of State. (Johnson).

COTTON INSECTS

A WEEVIL (Sternochetus oblongus) - FLORIDA - Single specimen found on open boll of wild cotton (Gossypium hirsutum) at bayside of Key Largo, Monroe County. (Creamer, Feb. 14).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Causing considerable damage to ponderosa pines in Hunter Creek, Knight Creek, Jenness Pack Station and Lyons Reservoir in Stanislaus National Forest. About 1,500 trees being killed in 4,000 acres of timber. Sanitation salvage being used to control beetles. (R. Bodine, USFS). Spotted infestions of this species, in combination with Ips sp., killing ponderosa pines in several locations in Yuba and Calaveras Counties. (R. Thompson, C. Wolf; CDF).

AN ENGRAVER BEETLE (Ips sp.) - CALIFORNIA - Severe outbreak killing over 60 ponderosa pines in 1-acre stand near Schmidt Ranch, Mendocino County. Controls underway. (L. Graff, USFS).

A BLASTOBASID MOTH (Holcocera iceryaeella) - CALIFORNIA - Larvae heavy in twigs of pines in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A PINE APHID - CALIFORNIA - An undetermined species heavy on Monterey pine in 15-acre Christmas tree farm in Hacienda Heights, Los Angeles County. (County Farm Advisor).

PINE SCALES - CALIFORNIA - Phenacaspis pinifoliae and Aspidiotus californicus heavy on pine trees in the Forest Genetics Station, Placerville, El Dorado County. Populations of what is possibly Toumeyella pinicola, heavy on pines in a local park in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A GALL MIDGE (Contarinia pseudotsugae) - CALIFORNIA - Infesting Douglas-fir trees in Jarbo Gap, Butte County. Trees were cut for Christmas trees, but about 100 found unsaleable on retail lot. (C. L. Wagner, USFS). Medium on Douglas-fir in Iverness, Marin County. (Cal. Coop. Rpt.).

A CERMABYCID BORER (Neoclytus conjunctus) - CALIFORNIA - Larvae heavy in oak twigs bark and trunks in Patterson, Stanislaus County. Pest causes much concern this time of year when firewood is stored in residences. (Cal. Coop. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Heavy on geranium plants in La Jolla, San Diego County. (Cal. Coop. Rpt., Feb. 14).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Larvae heavy on Hedera sp. in Salinas, Monterey County. (Cal. Coop. Rpt.).

AZALEA LEAF MINER (Gracilaria azaleella) - CALIFORNIA - Larvae heavy and tying leaves of azalea in Palo Alto, San Mateo County. (Cal. Coop. Rpt.)

AN YPONOMEUTID MOTH (Argyresthia sp.) - CALIFORNIA - Medium populations damaging arborvitae plants in Santa Rosa, Sonoma County. (Cal. Coop. Rpt.).

CUTWORMS - ALABAMA - Undetermined species causing extensive damage to small azaleas in a Mobile nursery; small plants in peat beds in hothouses being cut off at ground level. (Seibels, Bolton).

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Medium in roots of succulents in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

CRESCENT-MARKED LILY APHID (Neomyzus circumflexus) - CALIFORNIA - Medium on Lilium sp. in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Locally heavy on cherry trees in Dinuba, Tulare County. (Cal. Coop. Rpt., Feb. 14).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - CALIFORNIA - Heavy locally on Viburnum spp. in Exeter, Tulare County. (Cal. Coop. Rpt., Feb. 14).

ARMORED SCALES - CALIFORNIA - Diaspis boisduvalii heavy on Cattleya sp. in orchid house in San Francisco, San Francisco County. (Cal. Coop. Rpt.). FLORIDA - Phenacaspis cockerelli general on leaves of English boxwood at Monticello, Jefferson County. (Miller, Feb. 11).

MEALYBUGS - CALIFORNIA - Pseudococcus obscurus nymphs medium on Chamaecyparis lawsoniana in Salinas, Monterey County. Phenacoccus gossypii medium on Dracaena indivisa stock in Oroville, Butte County. (Cal. Coop. Rpt.).

WHITEFLIES - CALIFORNIA - Trialeurodes merlini, in combination with Diaspis manzanitae (an armored scale), heavy on manzanita shrubs in Forest Genetics Stations, Placerville, El Dorado County. Aleyrodes pruinosa locally heavy on Photinia arbutifolia in Stockton, San Joaquin County. (Cal. Coop. Rpt.). All stages of A. pruinosa heavy on ceanothus in Santa Barbara, Santa Barbara County. Aleuroplatus coronatus heavy on California live oaks in Sonoma, Sonoma County. (Cal. Coop. Rpt., Feb. 14).

CHRYSANTHEMUM LEAF MINER (Phytomyza atricornis) - CALIFORNIA - Light on leaves of chrysanthemum in La Jolla, San Diego County. Phytomyza sp. light on cineraria plants in Salinas, Monterey County, and La Jolla. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Eggs, nymphs and adults heavy on gardenia in Salinas, Monterey County, and medium on Prunus sp. in Parlier, Fresno County. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalus obovatus) - CALIFORNIA - Eggs and adults heavy on privet leaves in Salinas, Monterey County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Aceria aloinis) - CALIFORNIA - Light on Aloe spinosissima flowers in Vista, San Diego County. (Cal. Coop. Rpt.).

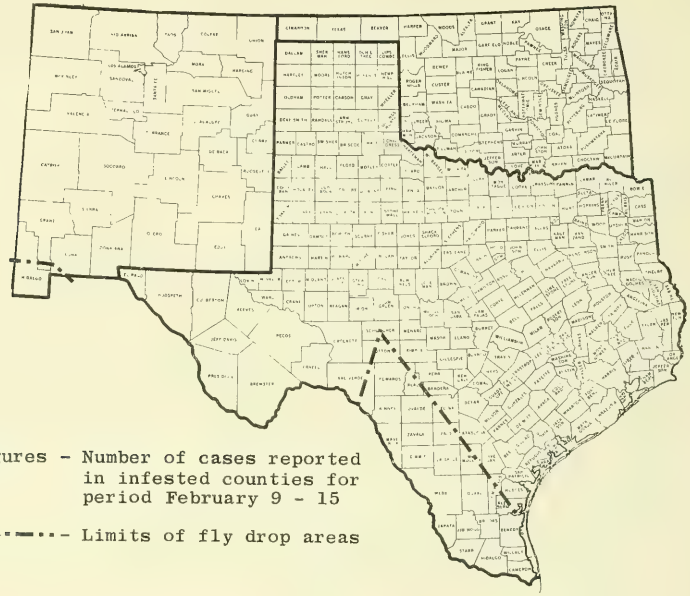
A TARSONEMID MITE (Tarsonemus sp.) - CALIFORNIA - Light on sadleria fern nursery stock in South San Francisco, San Mateo County; caused considerable damage to this fern species earlier in season. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Many heavy infestations being reported in northwest area. (Ark. Ins. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

No screw-worm identifications were made during the period February 9 - 15. With the exception of a doubtful case of preserved larvae submitted in January, it has been almost 2 months since a case of screw-worm has been determined. Collection of nonscrew-worm larvae in TEXAS continues good. Specimens were submitted from 37 cases of myiasis. These cases, scattered over most of southern and central Texas, indicating livestock producers continue good surveillance over animals for screw-worm infestations. Approximately 14,500,000 sterile flies were released over areas of Texas and New Mexico during this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 9 - 15

- - - - - Limits of fly drop areas

CATTLE LICE - OKLAHOMA - Contine light on cattle in Pushmataha County area. (Okla. Coop. Sur.). UTAH - Controls applied to 5,000 cattle in Tooele County. (Knowlton, Biggs).

BITING MIDGES (Culicoides spp.) - TEXAS - C. variipennis and C. stonei collected from jack rabbits in Presidio County. (Price).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Medium in residence in Fairfield, Solano County. (Cal. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Occasional individuals reported becoming active on cattle in Pushmataha County (southeast). (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - CALIFORNIA - Heavy in residence in Barstow, San Bernardino County. (Cal. Coop. Rpt., Feb. 14).

HOUSEHOLD AND STRUCTURAL INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - NORTH CAROLINA - Considerable numbers noted on bedroom wall in Cumberland County home. Det. by D. L. Wray. (Mount, Feb. 14).

BOXELDER BUG (Leptocoris trivittatus) - PENNSYLVANIA - Has been troublesome about homes in many locations over State during past months. (Pepper, Feb. 15). UTAH - Entering school rooms in Salt Lake City. (Knowlton).

CLOVER MITE (Bryobia praetiosa) - NORTH CAROLINA - Large numbers present in Forsyth County home February 11. Det. by D. L. Wray. (Mount).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - This species and Lyctus cavicollis extremely heavy in oak pallets in warehouse in Palo Alto, Santa Clara County. (Cal. Coop. Rpt., Feb. 14).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - FLORIDA - Winged reproductives of R. flavipes flying from nest out-of-doors at Gainesville, Alachua County. (Hetrick, Feb. 15). R. virginicus noted in house at Rockledge, Duval County, January 26. Det. by L. A. Hetrick. (Shinkle).

TERMITES - PENNSYLVANIA - Swarming about homes in Lock Haven, Clinton County, and in State College, Centre County. (Gesell, Adams; Feb. 15).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - CALIFORNIA - Larvae heavy in home-cured prunes in roadhouse in Morgan Hill, Santa Clara County. (Cal. Coop. Rpt.).

Stored-product Insects in Georgia - Light infestations of RICE WEEVIL (Sitophilus oryzae), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), CONFUSED FLOUR BEETLE (Tribolium confusum) and FLAT GRAIN BEETLE (Cryptolestes pusillus) present in stored corn and oats in central part of State. (Vanderford).

BENEFICIAL INSECTS

FLOWER FLIES - FLORIDA - Psilota buccata collected on Chickasaw plum (Prunus angustifolia) at Gainesville, Alachua County, on February 15. (Weems). This is a rarely collected species and this is first specimen for Florida State Collection of Arthropods; last taken in State at same location on February 24, 1919, by P. W. Fatic. (Fla. Coop. Sur.). Volucella anastacia taken on bloom of Chickasaw plum at Gainesville, February 16. (Weems). This is first record of this species for Alachua County and fourth specimen in Florida State Collection of Arthropods. Other specimens in collection are 2 from Sebring, Highlands County, and one from Suwannee County. (Fla. Coop. Sur.). Pipiza femoralis light in arborvitae (Thuja sp.) at St. Petersburg, Pinellas County, February 12. Larvae predaceous on aphids. (Bingaman).

MISCELLANEOUS INSECTS

AN ANT (Pheidole californica oregonica) - CALIFORNIA - Heavy locally in yard in Marysville, Yuba County. (Cal. Coop. Rpt.).

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - Heavy in earthworm bed in Snelling, Merced County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 14(6):78 - MOSQUITOES - FLORIDA - Line 3: Rainfall approximately 14.5 inches, ... should read ... 11.52 inches at municipal airport, ...

CEIR 14(8): HIGHLIGHTS - Reports in this issue are for week ending February 14, unless otherwise indicated.

LIGHT TRAP COLLECTIONS

	Temperature	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 2/18			BL						1												1			
GEORGIA																								
Tifton 2/13-19			BL							0	0								0	0				
SOUTH CAROLINA																								
Charleston 2/10-16			BL	0			0		1	0	0	0					0	0	0	0	1		0	
TEXAS																								
Brownsville 2/13-19			5BL	65			54		210	3	74	74		880			75	71			60		7	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 104)

CEREAL AND FORAGE INSECTS (continued)

SMALL GRAIN INSECTS

Highlights:

GREENBUG, ENGLISH GRAIN APHID, APPLE GRAIN APHID and CORN LEAF APHID were not a problem generally on small grains during 1963. Localized infestations of one species or another did require some treatments during the year in portions of Texas, Colorado and Washington. Three specimens of RICE DELPHACID were found in Palm Beach County, Florida; the first in that State since 1957. No other infestations of this planthopper were found in 1963. Some treatments were applied to control ARMYWORM in Indiana and Illinois, but the insect was of no major importance. ARMY CUTWORM controls were required during March in areas of western Oklahoma, and the pest caused considerable damage to early planted wheat in western Kansas where insecticides were applied to over 750,000 acres with variable results. CUTWORM outbreaks were observed in localized areas of south central and central South Dakota, and FALL ARMYWORM caused heavy damage to small grains in eastern Texas. CEREAL LEAF BEETLE was found for the first time in Ohio, and considerable spread was recorded in Michigan and Indiana. The potential HESSIAN FLY problem did not develop in Kansas primarily because of the extremely dry conditions at the time of spring oviposition. A BROWN WHEAT MITE problem was also anticipated in Oklahoma and Colorado, but due to prevailing conditions, no great problem developed. However, heavy populations did cause considerable damage in southern Nevada, and some controls were necessary in Wyoming, California and Oregon. A condition favorable for WHEAT CURL MITE and wheat streak mosaic appeared to be present last fall in northeastern Colorado. The latter mite was collected for the first time in Arkansas during 1963.

CORN LEAF APHID (Rhopalosiphum maidis) was present in varying numbers on small grains in the coastal bend and northern areas of TEXAS, and moderately heavy infestations were a problem on barley both during the spring and fall in southern NEW MEXICO. The aphid was generally light in OKLAHOMA, with periodic locally heavy populations on small grains throughout the growing season. It was present on winter barley in northeastern COLORADO at light to moderate levels. Oats, barley and wheat in Butte County, CALIFORNIA, were infested where yellow dwarf was extremely heavy. Populations in NEVADA were lower than in 1962 and equal to those of 1961. Infestations of this species were found on wheat and barley seedlings in Ingham and Berrien Counties, MICHIGAN, in late September and early October and it severely infested barley in Middlesex and Nottoway Counties, VIRGINIA, in late November.

GREENBUG (Schizaphis graminum) required controls in a few fields of small grain in northwest and north central TEXAS; and light, spotted infestations were found in wheat during the spring and fall months in Curry, Roosevelt and Quay Counties, NEW MEXICO. Populations in OKLAHOMA were noneconomic to light in most areas during the 1963 cropping season. Infestation levels and control measures were down from the light levels of 1962. The highest populations were present in January, but severe cold weather reduced populations considerably and they remained low the remainder of the season except in a few isolated areas. The first fall activity in Oklahoma was noted during late October, with some buildup in isolated areas of Payne and Logan Counties, central area. Extremely cold and icy conditions in December reduced these populations considerably. In COLORADO, greenbug was found on wheat in trace numbers in eastern and

southeastern areas, but due to drought it did not increase to a damaging population. Light to moderate greenbug populations were present on wheat planted in the fall of 1963 in Weld and Larimer Counties, and trace numbers were present on barley during the spring in the eastern area of Colorado. The only infestation of greenbug found in WYOMING was in Park County where it attacked small grains, but damage was light. In general, populations were much smaller than in 1962 in Wyoming. In NEBRASKA, very light and scattered populations of greenbug, averaging 2-10 per 10 sweeps, were found on small grains in the eastern area. The aphid was found for the fifth straight year in MINNESOTA, being first collected in early May. However, populations remained generally low and were not considered a problem. Greenbug appeared early in WISCONSIN; April 17. Populations remained low throughout the season and "red leaf" was essentially absent. The aphid became a problem in parts of Oconto, Marinette, Shawano and Outagamie Counties in mid-June. In ILLINOIS, greenbug was found in wheat and oats in most districts by late June. No apparent damage was done. The highest population recorded was 5 per sweep. Greenbug continued scarce in KANSAS with little damage reported, and it was very light in ARKANSAS. Light to heavy populations were noted on oats in northern LOUISIANA in March; approximately 25 percent plant destruction noted in one Webster Parish field.

ENGLISH GRAIN APHID (Macrosiphum avenae) counts were 30 to 40 per head on wheat in Adams County, WASHINGTON, in early July, and some treating was done. Infestations in NEVADA were above the 1962 level, especially in Humboldt, Pershing and White Pine Counties where medium infestations were present. No insecticide treatments were necessary since infestations were reduced by predators. English grain aphid was the most common aphid in small grains during 1963 in OKLAHOMA, but populations were generally light. The highest counts were found in the south central area during mid-March. Populations declined and activity had ceased by mid-May. Fall infestations in Oklahoma became active in mid-October, about 30 days earlier than the previous 5-year period. Populations of English grain aphid were low in KANSAS, NEBRASKA and MINNESOTA. In NORTH DAKOTA, this species showed considerable buildup on volunteer grain in the northeast during late October and early November. It appeared early in WISCONSIN (April 17), but populations remained low throughout the season.

APPLE GRAIN APHID (Rhopalosiphum fitchii) was unusually heavy in cereal grains and grasses in CALIFORNIA. These infestations were frequently accompained by yellow dwarf disease in barley. Trace to heavy populations were noted in Butte, Solano, Fresno, Sacramento and San Luis Obispo Counties. Counts in WASHINGTON ranged 0-30 per plant on fall-planted wheat and on late oats in Yakima County in October. Apple grain aphid caused 3 percent loss to spring wheat in western COLORADO, and populations were present in numbers that could have caused considerable loss to barley in the western area if controls had not been applied. Winter barley planted in the fall of 1963 in Weld and Larimer Counties, Colorado, has been infested with light to moderate numbers and some fields show symptoms of a virus disease being present. Apple grain aphid populations were low throughout OKLAHOMA during 1963, with the highest populations present in Jackson County during mid-April. Infestations disappeared with the onset of warm weather. Fall activity was first noted in mid-October, but remained at low levels. In ALASKA, a similar species of aphid, Rhopalosiphum padi, was found in large numbers in Palmer and other areas on one of its host plants, Prunus padus. R. padi is one of the more effective vectors of barley yellow dwarf in Alaska.

Greenbug, English grain aphid and apple grain aphid were first reported in SOUTH DAKOTA around May 1 in the southeastern region of the State. The first collection was of alates. A weekly survey was taken at 5 locations throughout the eastern half of South Dakota. Populations of these aphids stayed at non-economic levels throughout the State for the duration of the growing season. Various species of APHIDS were observed on small grains in MISSOURI; and they were prevalent on barley early in the season in Santa Barbara, Alameda, Solano,

Fresno and Nevada Counties, CALIFORNIA. Aphids were found on cereals in greater populations in the Tanana Valley of ALASKA than in other areas of the State. English grain aphid and greenbug were below normal in UTAH, but corn leaf aphid was about normal for the year on barley.

Three RICE DELPHACID (Sogata orizicola) specimens were found on June 18, 1963, in rice plantings in Palm Beach County, FLORIDA, and subsequently, hoja blanca disease was found in one location. This was the first time the disease had been found in the United States since 1959 and was in the same general area where the infection occurred in 1957. Neither hoja blanca nor the vector, S. orizicola, was found during 1963 in LOUISIANA. Rice delphacid was last found in Louisiana in 1962 when it was recorded in 7 parishes on 34 properties with 5,335 acres involved. Surveys in ARKANSAS, MISSISSIPPI, SOUTH CAROLINA and TEXAS were negative in 1963.

CHINCH BUG (Blissus leucopterus) adults averaged 7 per 10 sweeps on wheat in Dodge and Saunders Counties, NEBRASKA, in mid-April; and the pest was observed feeding on small grains in MISSOURI during the year. Populations in ILLINOIS were a little higher than in 1962 on small grains.

RICE STINK BUG (Oebalus pugnax pugnax) was general but light on small grains throughout ARKANSAS in May. A few nymphs were found June 22. Surveys were conducted by the sweep method prior to heading of rice. After heading, bugs on rice heads were counted. One commercial scout surveyed 18 fields weekly from late June through late September. This species is closely associated with species of barnyardgrass as the primary alternate host prior to rice forming heads.

A GRASS BUG (Irbisia brachycerus) caused trace amounts of damage to wheat in Dolores and La Plata Counties, COLORADO, and another GRASS BUG (I. pacificus) caused economic damage to wheat and native grasses in the Klamath Falls area of OREGON.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was very abundant on oats in ILLINOIS and was also found on wheat. In late June, one field of oats in the northeast district had 18 nymphs and 40 adults per sweep. High numbers were found in MINNESOTA early in May. It was feared that aster yellows, a virus disease, was being carried by the migrating leafhoppers. This was not the case. Plant pathologists at the University of Minnesota found a very small percentage carrying the virus. Aster yellows was unimportant in Minnesota in 1963. The disease was found in Kittson and Marshall Counties, but infection seldom reached higher than 5 percent. Feeding damage by the leafhopper did occur in some fields of small grains. Populations remained high the entire season in Minnesota. Six-spotted leafhopper was present in moderate numbers in NORTH DAKOTA except for a few instances of considerable buildup in flax in the southeast. Unspecified LEAFHOPPERS were found on cereals in greater numbers in the Tanana Valley of ALASKA than in other areas of the State.

ARMYWORM (Pseudaletia unipuncta) infestations were generally spotty during the spring in MARYLAND, with moderate to heavy damage observed locally to barley. The first adults were collected in blacklight trap in Sussex County, DELAWARE, on April 17. Adults were collected regularly in blacklight traps in NEW HAMPSHIRE from July 8th until November 18th, with peak numbers occurring in the last week of July. No outbreaks were reported during 1963 in NEW JERSEY. Infestations were reported in approximately 20 western OHIO counties indicating some loss in wheat by stem cutting and defoliation. Armyworm was also damaging in localized parts of central and northern INDIANA, and controls were applied in the northwest. In ILLINOIS, populations reached as high as 11 larvae per linear foot of row in lodged grain in some fields, and treatments were necessary. An estimited 245,547 acres were treated, including some grassy corn fields. Flights in WISCONSIN again began about the first of April and peaked during the last week of May. Larvae became noticeable in Dane and Columbia County crops, but damage was insignificant. A second moth peak occurred near the end of July,

but no known larval damage occurred to crops. In MISSOURI, the first larvae of the season were reported from the southeast April 20. A few larval counts in the southeast ran as high as 36 per square yard, but were confined to dense and down barley and wheat. Populations throughout the rest of Missouri were again low and very little damage occurred. Armyworm was of minor importance in TENNESSEE. Approximately 1,600 acres required treatment, principally in small grains. This saved an estimated $40,000, figuring small grains at $25.00 per acre.

ARMY CUTWORM (Chorizagrotis auxiliaris) caused heavy, local damage to wheat in Ochiltree and Swisher Counties, TEXAS, during 1963. It became active in mid-January in OKLAHOMA and built up to damaging proportions in the northwest and panhandle counties in late January. Cold weather in February reduced activity, but the pest increased again to damaging proportions by early March. Control measures were necessary during March in northwest and panhandle counties but, by early April, most activity has ceased. In KANSAS, army cutworm caused considerable damage to early planted wheat in the western area. Although counts were lower (2-5 per linear foot of row) than what is generally considered to be economic, the cutworm, coupled with winterkill and low soil moisture, kept the plants from making new growth and, as a consequence, as much as 50 percent of the wheat was not harvested in some counties. Insecticides were applied to over 750,000 acres with variable results. The problem area was in a band between Reno and Finney Counties and extended from southern Kansas to as far north as Russell County. In COLORADO, army cutworm was present in economic numbers on wheat only in a relatively small area of Kiowa County. Other areas of Colorado had only trace numbers which were not of economic importance. Grain fields in Umatilla County, OREGON, received damage from this species from April to July; and army cutworm was about normal for the year in UTAH.

DINGY CUTWORM (Feltia ducens) was abundant, but noneconomic, in many wheat fields in Lincoln County, NEBRASKA, in early May; and localized, early spring infestations of unspecified CUTWORMS caused up to 25 percent of winter wheat plants to be destroyed in south central and central SOUTH DAKOTA.

FALL ARMYWORM (Laphygma frugiperda) began building up during late August and reached a peak during early November in TEXAS. It caused heavy damage to small grains in the eastern part of the State. In OKLAHOMA, fall armyworm became active in mid-August in grain sorghum and threatened some small grain plantings in the panhandle and central areas during September. It caused minor damage to wheat in a few southwestern KANSAS counties in the fall, and infestations and damage to cereal crops were severe in southern NEVADA.

STALK BORER (Papaipema nebris) was common in marginal rows of small grains in many areas of ILLINOIS. A count in one field of oats showed 30 percent of the stems infested in the first 10 feet bordering a weedy roadside which had recently been mowed. Many of the infested stems were breaking and dying and the kernels never matured. Wheat was infested in MINNESOTA. Many of the white heads of wheat in that State were caused by this insect rather than by wheat stem maggot (Meromyza americana). WHEAT HEAD ARMYWORM (Faronta diffusa) was not of economic importance during 1963 in KANSAS, but heavy numbers were present in the Joliet area of MONTANA.

CEREAL LEAF BEETLE (Oulema melanopa) was collected May 28 and June 3, 1963, in northwestern Williams County, OHIO. These were the first records for that State. The second collection consisted of two adults and four larvae in four different oat fields. A new quarantine followed, imposing 14 counties located west and north of Hardin County. Latest distribution records indicate 6 Ohio counties infested; namely Williams, Fulton, Lucas, Defiance, Henry and Allen. Populations did not reach economic levels in Ohio during 1963. A total of 25 counties were known to be infested in INDIANA by the end of the year. Only two counties, La Porte and St. Joseph, were found infested in 1962. First 1963 egg hatch was observed on May 2. Of special interest was the report that a second generation developed from larvae collected from a field at New Carlisle, St.

Joseph County, Indiana. Larvae completed development and pupated in June. Emerging adults fed continuously on oats, mated and commenced laying eggs without diapause. The first hatch occurred on August 7. In MICHIGAN, 13 new counties were found infested in 1963. Only 2 counties, Berrien and Cass, were known to be infested before last spring. Populations were considered relatively small in Michigan in all but the primary infestation areas of Berrien and Cass Counties. All new "finds" were made during May and June when larvae and "summer" adults could be surveyed for most easily. Since no new infestations were uncovered after July 1 when most "summer" adults enter an inactive period, it is uncertain just when the major spread discovered in Michigan and the neighboring State of Indiana occurred. Possibly, much of it could have taken place in 1962 and earlier years and went undetected at low infestation levels until adequate survey conditions and personnel combined in 1963. To suppress population and minimize spread, a joint Federal-State control program was initiated early in the spring in the two-state area of Michigan and Indiana. Intensive surveys will be continued in 1964 to determine any further spread of the beetle. Detection surveys in other States during 1963 were negative.

DISTRIBUTION OF CEREAL LEAF BEETLE

Outlined counties infested
• indicates reported infested in 1962

Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA

August 15, 1963

Larval injury by BILLBUGS (Sphenophorus spp.) was evident on wheat plants in some southern MICHIGAN counties in June, and undetermined billbugs were reported on grains in Flathead County, MONTANA, during 1963.

A severe HESSIAN FLY (Phytophaga destructor) problem in the fall of 1962 in KANSAS failed to continue in the spring of 1963 due primarily to extremely dry conditions at the time of spring oviposition. Fall surveys in 1963 showed only a relatively small area in the north central part of Kansas having a serious problem. This was due to a combination of low moisture at oviposition, planting of resistant varieties and some later planting dates. In NEBRASKA, light to moderate infestations occurred in wheat in southwest, south, southeast and eastern areas through June. Counts heaviest in southern counties along Kansas border. Fall surveys showed scattered infestations of 1 to 60 percent in Nebraska. Hessian fly was present over a wide area in the Broadview country of MONTANA, but numbers were not reported as being economic. A heavy infestation was observed in McLean County, NORTH DAKOTA, but only light infestations occurred on wheat in the Red River Valley of MINNESOTA. Populations in ILLINOIS were the lowest since 1958. A summer survey showed an average of 2.8 percent of the tillers infested, with only 4.7 puparia per 100 tillers. A survey of fall-seeded wheat in the east-southeast district of Illinois showed only 0.3 percent of the plants infested, with 1 larva per infested plant. In MISSOURI, a total of 38 fields in 5 counties in the northwest, northeast and southwest areas was checked after harvest for infestations in the stubble. The results showed an average of 1.82 percent of the plants infested with 2.22 puparia per 100 plants. The same number of fields in the same areas was checked in the fall for infestations in fall-seeded wheat and the results showed an average of 10.32 percent of the plants infested with 33.01 larvae per 100 plants.

WHEAT STEM MAGGOT (Meromyza americana) was more prevalent during 1963 in the southern half of MINNESOTA. Infestations ranged generally from 1 to 10 percent. Occasionally a field had as high as 20 percent. The pest caused some concern in the extreme southeast portion of NORTH DAKOTA; and Edmunds County, SOUTH DAKOTA, wheat had stand losses ranging from 10 to 30 percent due to this insect. In NEBRASKA, infestations of less than one percent were present in wheat in all areas of the State. Wheat stem maggot was not of economic importance in KANSAS. Larval specimens were collected from wheat in Wilbarger County, TEXAS, but the infestation was of a light, local nature. A WESTERN WHEAT STEM MAGGOT (Hylemya cerealis) caused trace amounts of injury to wheat in Weld County, COLORADO; and medium to heavy infestations of a RICE LEAF MINER (Hydrellia griseola) developed in May in rice-growing counties of CALIFORNIA.

A WHEAT STEM SAWFLY (Cephus cinctus) survey was conducted in the northwest district of NORTH DAKOTA in mid-July; 33 percent of the dissected stems were infested by larvae. A statewide survey showed a range of 0.0 percent cut stems in most eastern counties to 12 percent cut stems in Billings County. Counties in the northwest district had from 4 to 9.1 percent (averaged 5.8 percent) cut stems. The latter survey was conducted during late summer and early fall. WHEAT JOINTWORM (Harmolita tritici) was not of economic importance during 1963 in KANSAS, and populations were below average in UTAH.

Undetermined THRIPS were a problem on wheat in some areas of COLORADO, primarily due to the fact that their normal host plants dried up and the thrips migrated and damaged wheat, particularly the spring-planted crop. Unidentified thrips were present on barley in the Plentywood area of MONTANA, and a BARLEY THRIPS (Limothrips denticornis) was abundant on small grains in the eastern parts of NORTH DAKOTA. Several species of thrips were very abundant in the heads of barley and wheat in MARYLAND, and they were more abundant than usual on wheat in ILLINOIS.

BROWN WHEAT MITE (Petrobia latens) threatened to build up to damaging numbers during early March in OKLAHOMA, but heavy rains in April reduced this threat and only isolated sections in the central and panhandle areas showed any damage. Some controls were initiated. Brown wheat mite was present on wheat early in

the spring in southeastern and eastern COLORADO at population levels which in most years would develop into an economic problem, but due to prevailing conditions, no measurable loss resulted. The mite was also active on barley early in the spring in all areas of eastern Colorado. In WYOMING, heavy infestations of brown wheat mite were found in the wheat-growing areas of Goshen County. Slight damage was noted and controls were applied in some cases. Populations were higher than those found in 1962. Populations were below normal in UTAH and were generally light in central and northern NEVADA, but infestations and damage were medium to heavy on small grains in areas of Clark, Lincoln and Nye Counties, Nevada, in April and May. Brown wheat mite caused light to medium damage to grain fields in the Tulelake area of Siskiyou County, CALIFORNIA, and, in the Klamath Falls area of OREGON, 250 acres of barley and wheat had to be treated to control this mite.

WHEAT CURL MITE (Aceria tulipae) was collected in northwest ARKANSAS in July; a new record for the State. The species was present only in low numbers in KANSAS and only a trace of damage occurred to the harvested crop. Moderate populations were present in wheat in southwest Kimball County, NEBRASKA. This area had large sections of volunteer wheat during the fall of 1962. In the fall of 1962, conditions prevailed in COLORADO which were favorable for development of this mite and wheat streak mosaic in the northeastern area and, as a consequence, caused a reduction in yield of 5 percent on one-third of the planted acreage. A similar situation appeared to be developing in the fall of 1963 and there may be an increase in the amount of loss in 1964.

WINTER GRAIN MITE (Penthaleus major) required controls on small grains in Falls and Comal Counties, TEXAS, and was present in wheat-growing areas of OKLAHOMA from late January to late March. It was observed on small grains in MISSOURI, and below normal for the year in UTAH.

CORN, SORGHUM, MILLET AND SUGARCANE INSECTS

Highlights:

The EUROPEAN CORN BORER increased this past year in several of the more important corn-producing States of the Midwest. As a consequence, damage was greater, even though record corn yields were reported. The fall abundance survey indicated that population levels of overwintering larvae were increased in parts of Iowa, North Dakota, Nebraska, Minnesota and Illinois, but rather low levels were recorded from Indiana eastward. SOUTHWESTERN CORN BORER extended its range eastward in 1963, being recorded for the first time in southern Illinois and in a number of Tennessee and Alabama counties. Damage to corn was decreased this past year in Missouri and Arkansas. CORN EARWORM was generally not important this past year in the more northern States, but heavy damage to corn and/or sorghum was encountered in parts of Arizona, Nevada, Texas, Oklahoma and several Southeastern States. A FALL ARMYWORM outbreak in eastern Texas caused heavy damage to grain sorghum foliage and corn ears. Local outbreaks were also recorded in several other widely dispersed areas. CORN ROOTWORMS continued to be a major problem in a number of Midwestern States. Resistance to several chlorinated hydrocarbon insecticides by WESTERN CORN ROOTWORM was reported in Kansas, Nebraska and South Dakota, and the pest continued to spread in Minnesota, Iowa and Missouri. Damage was recorded in Minnesota for the first time in 1963, and the pest was regarded as being of major importance in the western one-third of Iowa. Infestations of western corn rootworm in Colorado and Wyoming were not as severe as in the past. NORTHERN CORN ROOTWORM caused some damage to corn in parts of Minnesota, Wisconsin, Illinois and Ohio, but losses were not great. Some resistance was reported in Iowa.

WIREWORMS were of importance in a number of States in 1963, and replanting was necessary in a number of instances. CORN LEAF APHID became heavy on corn over the northeastern quadrant of the country, particularly during the droughty periods. Controls were necessary in some instances. Some heavy infestations were also reported in New Mexico and Wyoming. SORGHUM MIDGE caused light to heavy losses to late-planted grain sorghum in areas of New Mexico and Texas, and was heavy on milo in Kings County, California. Populations in Arizona were generally small and very scattered. SPIDER MITES were heavy on corn in areas of Nevada and New Mexico, and they required controls in a number of Colorado counties. BANKS GRASS MITE caused some injury in Nebraska, with moderate infestations being found as far east as Colfax County.

The EUROPEAN CORN BORER (Ostrinia nubilalis) fall survey in southeast NORTH DAKOTA showed considerable increases in larval populations. The survey covered the 5 extreme southeast counties, and showed 95.31 percent of corn plants infested, 3.99 larvae per infested plant and 391.49 borers per 100 plants. Most sweet corn was heavily infested during the year. In SOUTH DAKOTA, the winter mortality survey was started on March 25. The results indicated that mortality of larvae was 10.5 percent in the corn-growing areas of the State. Pupation was 85-90 percent completed by June 1 in the southeast. The June egg mass survey revealed 1-16 egg masses per 25 plants throughout the eastern area in corn fields. The fall infestation survey was completed by November 15, and data showed an average of 39.1 percent of the plants infested compared with 39.6 in 1962 and 106.9 borers per 100 plants compared with 160.3 in 1962. The greatest number of borers per 100 plants was in the southeast district where 259.7 borers were found compared with 293.9 in 1962. The three major parasites of European corn borer in South Dakota as determined by the Corn Borer Investigations Laboratory located at Ankeny, Iowa, are Sympiesis viridula, Horogenes punctorius and Macrocentrus gifuensis. The degree of parasitism was highest in Brookings County, with 21 percent of the borers infested. The overall average for South Dakota was 2.9 percent. Spring European corn borer surveys in NEBRASKA indicated overwintering larval populations were higher than normal. The first generation was light to moderate and spotted in June and July. The second generation built up to high numbers in most areas of the State. Peak moth flights were June 10 and 15, and August 1. Fall surveys indicated a State average of 73 percent infesteation in 1963 compared with 67 percent in 1962 and 38 percent in 1961. Borers per 100 plants were 206 in 1963 compared with 201 in 1962 and 56 in 1961.

European corn borer remained at about the same level as in 1962 in KANSAS, with only the north central area having any appreciable increase in numbers (10 fold). Surveys conducted during all months in NEW MEXICO showed no European corn borer to be present in Curry, Roosevelt, Quay, Lea, Chaves, Dona Ana, Sandoval, Bernalillo, Luna and Otero Counties. The pest is not known to exist in New Mexico. Based on all samples, the numbers of larvae entering hibernation in ARKANSAS averaged 14.1 per 100 plants compared with 24.9 in 1962. Percent stalk infestation averaged 26.7 compared with 36.7 in 1962. The average number of larvae entering hibernation was 180.3 per acre. Lower infestations in 1963 in Arkansas resulted from a lower percentage of corn being planted in June and July. European corn borer was more abundant in TENNESSEE than in 1962. Survival surveys made in early April in southeast MISSOURI showed 53.3 percent reduction of overwintering larvae. Stalk dissections in early May showed 50 percent pupation in the southeast. The first pupa was found in the west central area on May 2, which was slightly earlier than normal for this area. First-brood damage was generally light throughout the State. Second-brood populations in Missouri were higher than in 1962 in the northwest. The highest populations were again in the southeast. Results of the fall abundance survey in Missouri revealed that the average larval population for the State (borers per

100 plants) was about the same as in 1962.

The annual spring mortality survey for European corn borer in IOWA showed the average percent survival to be 76. The first pupa was found in Boone County on May 1, and the first egg hatch occurred on June 6. By the third week of June, leaf feeding became apparent enough to justify serious warning to farmers. The annual first-brood survey was made July 10-12. Of 90 fields examined, 23.2 percent were infested with an average of 1.2 borers per infested plant. The State average was 34 borers per 100 plants. The northwest was generally the most heavily infested area with the infestation apparently spotty in the remainder of Iowa. The fall second-generation survey revealed borers to average 160 per 100 plants, with 71.6 percent of the plants infested. The figures for the 1963 fall survey were about the average for the preceding years. The northwestern part of the State was rather hard hit in 1963 and it appears that damage will be even higher in 1964. The European corn borer population in general was much higher than in 1962.

Mortality of European corn borer averaged 17 percent when the spring survey was made in MINNEOSTA. The extremely cold winter and light snow cover had little effect on the overwintering population. Pupation and moth emergence began during the first week of June in that State. The first-generation population was high in the west central and southwestern districts. Second-generation moth flights began about July 23 and reached a peak during the week of August 19-23. A long, warm fall allowed most of the second generation to complete growth and go into the winter in good condition. Stalk breakage was high in 1963, especially in the west central district where infestations were high. Percent stalk breakage by districts in Minnesota was 13 in the southwest, 17 in south central, 11 in southeast, 23 in west central, 8 in central, 4 in east central and 10 in northwest. An abundance survey in early October showed a population increase in all districts of Minneosta except in the northwest. The State average was 90 borers per 100 plants. The greatest increase was in the south central district. This can be attributed mainly to the second generation. In WISCONSIN, pupation of European corn borer began on May 14. The first adults appeared in mid-May, and flights were larger than in many years previous. Eggs were noted on corn during the second week of June. Treatment was underway by the third week of July in one area. The succeeding generation of moths was less numerous than in 1962, although the overwintering larval population was somewhat greater than in 1962.

European corn borer survival over the previous winter in ILLINOIS was about 66.6 percent. The first-generation survey showed that populations in the northeast, east, central and west-southwest districts remained about the same as in 1962. However, populations in the west and northwest districts were about twice as high as they were in 1962, and the highest they have been since 1958. Borers collected during the first-generation survey in the west and northwest districts of Illinois showed 32 percent were infected by Nosema pyraustae. Practically all first-generation borers pupated. The fall survey showed that the State average for 36 counties increased from 101 borers per 100 plants in 1962 to 106 in 1963. The northwest district increased from 150 to 207, and the northeast district from 64 to 116. The west district remained approximately the same - 149 to 150 borers per 100 plants. All other districts showed decreases in population. No signs of the parasitic tachina fly (Lydella grisescens) were observed during the fall survey. This parasite is rapidly dying out in most districts of Illinois. In INDIANA, first instars appeared on early corn in Vermillion County the second week of June. The annual fall survey revealed an average of 35.7 borers per 100 plants, with 27.8 percent of the plants infested. Eighty-two percent of the fields were attacked in 1963. The loss was estimated at 1.1 percent compared with 0.8 percent in 1962.

An autumn European corn borer survey in MICHIGAN revealed a lower incidence of larval injury than during 1962 to field corn. Borers averaged 0.28 per stalk on a statewide basis in 1963 and 0.5 per stalk on a similar basis in 1962. County infestations ran from a high of 0.59 per stalk in Lenawee County, a

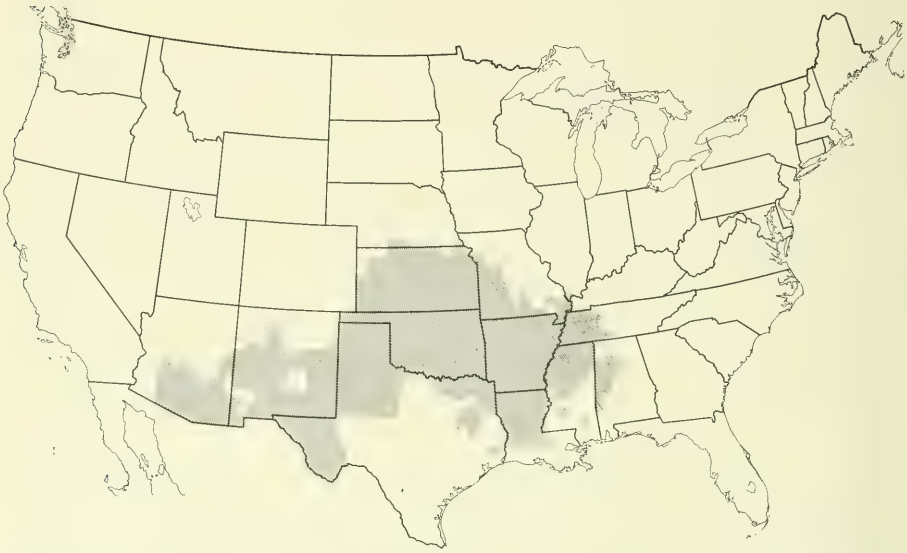
southern county, to 0.0 in the more northern counties of Gratiot, Isabella, Saginaw and Tuscola in 1963. Commercial sweet corn growers in southeast Michigan experienced difficulty controlling the first brood of larvae. Ear damage was generally more severe than any year since 1955. In OHIO, results of the autumn survey indicate lower borer populations than in 1962. The 1963 State average was 20.1 borers per 100 plants (based on all samples collected) compared with 26.3 borers per 100 plants in 1962. Ohio farmers in general are not concerned about European corn borer causing economic losses to field corn. European corn borer was less abundant than in 1962 in PENNSYLVANIA.

The overall European corn borer infestation increased 2 percent during 1963 in VERMONT. It was only moderately abundant generally in NEW HAMPSHIRE and inconspicuous in RHODE ISLAND. Moderate populations and damage were noted on sweet corn in MAINE at Orono, Penobscot County, and Monmouth, Kennebec County, in early August. Light damage to corn was in the Auburn area, Androscoggin County, about the same time. Populations in NEW JERSEY remained at a very low level during 1963. A spot check of field corn in the southern area during the flight of first-brood moths revealed that eggs numbered only 1-4 per 100 plants. Populations were very low on sweet corn in New Jersey. In DELAWARE, the spring larval population of 31 borers per 100 plants was considerably lower than that found in the spring of 1962 and indicated an average reduction of 55 percent in borers that survived the winter. First pupation was noted in eastern Kent County on April 3 and, by April 29, approximately 50 percent of the borers had pupated. First adults of the season emerged on May 5 in outdoor cages in New Castle County, and on May 7, the first female was collected in a blacklight trap in Sussex County. The fall population of borers in corn averaged 77 per 100 plants and closely resembled the relatively low infestations that were found in most areas of the State in 1962. The first-generation larval infestation generally ranged from light to moderate in MARYLAND except in corn planted before May 1 where infestations of from 10 to 50 percent of the plants were common. Moth activity reached a seasonal peak during the last two weeks of July. Light infestations were detected in early July on the Eastern Shore of VIRGINIA, and infestations were light to heavy in GEORGIA. European corn borer has not been a serious pest of corn in Georgia, but it is becoming more so each year. In ALABAMA, European corn borer was present and caused some damage to corn in the upper central and northern counties, but the pest was serious on grain sorghum in two counties, Autauga and Lauderdale. Grain production was reduced 50 to 60 percent in one large field of grain sorghum in Autauga County.

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) was collected for the first time in ILLINOIS in Alexander County on March 29, 1963. Subsequent surveys revealed its presence in Pulaski County. Populations were very low. In MISSOURI, the percentage of stalks girdled was considerably lower in the southwest area in 1963. This was probably due to dry weather. Late corn was again severely damaged in the southeast part of Missouri. Several fields were 100 percent infested during the fall survey. The percentage of stalks girdled in late corn in the southeast was up from 20.9 in 1962 to 25.3 in 1963. Two larvae of southwestern corn borer were collected in Wayne County during the year, constituting a new county record. Infestations in ARKANSAS were lighter in the northern area than they were in past years. This was likely due to low winter survival in the colder area of the State and a severe winter. Bird feeding is also reducing overwintering larvae. Winter survival was 14.11 percent in 1963 compared with 22.58 percent in 1962. Survival was only 0.25 percent in the northwest area. Lodged corn was less in 1963 than in any of the four years that these counts have been made, with an average of only 2.2 percent. This was due to low numbers of insects in the northern area and the low acreage of late corn. Southwestern corn borer infestations were general over northern LOUISIANA during the late summer, being heavy on some late-planted corn. It spread considerably in TENNESSEE during the year, being found as far east as Lawrence County. The borer is now present in 21 counties west of the Tennessee River in the State and Lawrence, Wayne, Perry and Humphreys Counties east of the river.

Early infestations in Tennessee were very light but normal infestations existed at the end of the season. The southwestern corn borer entered ALABAMA in one western county in 1962 and spread into a total of 16 counties in 1963, traveling generally in a southeastern direction. Serious damage did not occur in 1963, partly because only the second and third generations were prevalent. More serious damage may occur in 1964 since the pest will be firmly established. One field observed in 1963 showed about an 8 to 10 percent stalk lodging from girdling during the last generation and would have represented quite a loss with machine harvesting. The insect remained at very low levels in KANSAS. In NEW MEXICO, it was present in corn roots or stalks in most fields checked in Curry, Roosevelt, Quay, Lea, Chaves, Dona Ana, Sandoval, Bernalillo, Luna and Otero Counties.

DISTRIBUTION OF SOUTHWESTERN CORN BORER



LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused light damage to corn in a few south central VIRGINIA fields, and it reached damaging levels on broomcorn and sorghum in OKLAHOMA. The borer caused severe damage to sorghum in Maricopa County, ARIZONA, where replanting was necessary, and it caused considerable damage in other areas of the State. Medium, local infestations were also noted on corn in Orange County, CALIFORNIA. In FLORIDA, small localized infestations of lesser cornstalk borer occurred in the Everglades area on sugarcane, but in spots this species caused loss of approximately one-half the stand. The pest also caused some damage to corn in ALABAMA.

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) numbers ranged from light to moderate in field corn in the three lower Eastern Shore counties of MARYLAND; and the pest caused some damage to corn in upper central and northern counties of ALABAMA.

SUGARCANE BORER (Diatraea saccharalis) infestations were heavy in Brazoria County, TEXAS, grain sorghum, but were generally light in other areas of the State. In FLORIDA, sugarcane borer tended to increase in newer plantings of sugarcane located progressively away from Lake Okeechobee.

STALK BORER (Papaipema nebris) populations were higher during 1963 in MINNESOTA, especially in the southern third of the State. Marginal rows of corn were infested; counts varied greatly between fields, but infestations did reach as high as 95 percent in marginal rows in Watonwan County. The pest was common in marginal rows of corn in many areas of ILLINOIS, and quite common on sweet corn in PENNSYLVANIA. Larvae conspicuously infested whorls of marginal rows of several fields of field corn in Frederick and Worcester Counties, MARYLAND. In MAINE, light populations and damage to sweet corn were noted in the Springvale area of York County during late July and in Cumberland County in early August.

The heaviest CORN EARWORM (Heliothis zea) winterkill on record in WASHINGTON occurred in 1963 because of February runoff flooding the lowlands plus the effects of freeze and thaw. Infestations were light until late in the season, with lowest total light trap catch in the Yakima Valley in seven seasons. Population peaks were recorded in mid-July, late August, mid-September and mid-October, with greatest populations and damage in the late summer and fall. Pupae were numerous this past fall in the Yakima Valley, the heaviest recorded. Corn earworm was light to medium on corn and milo in CALIFORNIA. Corn grown in most areas of ARIZONA was damaged heavily, while sorghum received only moderate damage during the late summer months. Populations and damage were severe in southern NEVADA. Damage to ears of sweet corn was heavy in Clark, Eureka, Lincoln and Nye Counties, but was the lowest in several years in southern Washoe County. The pest was below average in numbers or importance during 1963 in UTAH.

Corn earworm infestations in TEXAS were heavy in grain sorghum heads in south central, north central, northwestern and south plains areas. Damage by corn earworm to field and sweet corn was general in Texas and caused the usual significant damage to untreated fields. The pest was light to heavy in whorls of corn in southern LOUISIANA during May. In OKLAHOMA, heavy populations damaged grain sorghum and corn during late June. Damage to field corn and sorghum continued to be low in KANSAS, but the pest was severe all during the season on sweet corn in the Sedgwick County area. No infestations occurred in early sweet corn in northeast Kansas, but larvae were almost 100 percent in corn harvested late in September. Corn earworm was again light during 1963 in MISSOURI in both whorls and ears of corn. In NEBRASKA, larval infestations ranged from 5 to 80 percent in corn. An unusually early occurrence of 5 adults was noted in the light trap in Lincoln (Lancaster County) March 28 and 29. Populations were extremely low on field corn in MINNESOTA. Moths were caught as early as mid-June in WISCONSIN although significant numbers did not begin appearing until about the fourth week of July. Adults resulting from overwintering larvae were noted at the end of June. Infestation of corn appeared to be minimal, and large flights commenced about mid-September, reached a peak mid-October and fairly large numbers prevailed until the end of October.

Corn earworm injury to field corn was extremely low in MICHIGAN. Of 5 fields selected at random from 18 counties, only 6 ears of a 2,440-ear sample showed earworm injury. Blacklight trap data show a very light flight of adults occurred in Michigan during the season. Most of this took place after silking for the vast majority of field and sweet corn acreage. Most of the sweet corn producers employed a reduced spray program in 1963 with excellent results. Populations in OHIO were quite low throughout the season until late autumn, and the pest was less abundant than the previous year in PENNSYLVANIA. Infestations of sweet corn in the Hudson Valley of NEW YORK were scarce in 1963. Corn earworm remained at a very low level on field corn in NEW JERSEY during 1963, and the pest was at its lowest point in memory on sweet corn. In DELAWARE, the first adults of the season were collected in a blacklight trap in Sussex County

on May 22, and young larvae were noted on corn and alfalfa during the week of June 17. Larval infestations were high on corn during August; and adults, as indicated by blacklight trap collections, were extremely abundant during late August and early September in Sussex County, with counts averaging over 150 per night during this period. Ear infestation in field and sweet corn in MARYLAND was about normal, being heaviest in late August and September. Corn earworm infested corn throughout VIRGINIA, but damage was less than in recent years. Untreated sweet corn was 100 percent infested on the Eastern Shore of Virginia by late August. Infestations were rather light in the latter area in early July.

In GEORGIA, light to heavy infestations of CORN EARWORM (Heliothis zea) and FALL ARMYWORM (Laphygma frugiperda) were noted in whorls and heads of grain sorghum and millet. These two species were also moderate to heavy in whorls of field corn in late May and early June. Infestations were general over the State. The corn earworm was abundant early in the season at Sanford, Zellwood and Gainesville, FLORIDA, but as the main sweet corn acreage developed the available earworm population appeared to be spread thin. Thus, farther along in the season, the earworm gave the impression of being lighter, even to the point of being lighter than in 1962, in the Gainesville area at least. In the Everglades areas around Belle Glade, caterpillars were severe on sweet corn the whole growing season. Among these were the corn earworm and fall armyworm, with the latter probably being the worse during the late spring and early fall.

Corn earworm was by far the most serious pest of grain sorghum in ALABAMA. About the third, fourth and fifth generations of this insect attacked grain sorghum that was planted in June and July. Grain in many fields was a 50-percent loss, and in all cases, damage resulted in numerous stored grain pests entering grain heads before the crop was moved into storage after harvesting. When heavy populations of corn earworm and fall armyworm attacked grain sorghum prior to grain heads emerging, serious damage to the stalks occurred and no grain heads developed. Corn earworm did its normal damage to field corn in Alabama. Although the loss of grain from this pest was not too serious, infested ears were quickly entered by numerous damaging stored grain pests, as with grain sorghum, and much damage resulted. Fifty to 100 percent of the ears in fields were attacked by corn earworm, with heaviest infestations appearing in the central and southern counties. Controls for corn earworm on corn planted for grain are not considered economical in Alabama.

FALL ARMYWORM (Laphygma frugiperda) began building up during late August in TEXAS and reached a peak during early November. Heavy damage to grain sorghum foliage and corn ears was commonly reported from the eastern half of the State. About 200 acres southeast of Mora, NEW MEXICO, was sprayed to control this pest; and some sorghum fields were badly damaged in ARIZONA. Fall armyworm was a serious pest of corn and other grasses during 1962 in ALABAMA, but appeared as isolated and heavy in localized areas only in 1963. This pest has been quite unpredictable since it made an early appearance in 1963 in Alabama, and if succeeding generations had developed, as in 1962, it could have been a major pest of corn, pasture and grass-hay crops. The pest was light in ARKANSAS; however, fourth-stage larvae were found on corn as early as June 1 in the southeast. The insect was found feeding on corn in MISSOURI and caused only minor damage to ears of corn in KANSAS. From 1 to 15 percent of corn ears were infested in Lincoln County, NEBRASKA, in September. Larvae were commonly found in corn stalks in eastern and southeastern Nebraska in early November. Larvae were noticeably "ragging" corn in Columbia and Dane Counties, WISCONSIN, in early August, but none were found during the European corn borer survey in September. In MARYLAND, the first infestation of the season occurred in late-planted corn in the central area during the last week of July. Subsequent infestations in late corn in all sections were generally spotty, but some fields had over 50 percent of the plants infested. Fall armyworm occurred as local infestations on corn in August and September in a few central VIRGINIA counties, and several commercial fields of late-planted sweet and field corn were rather severely injured in late July and early August in DELAWARE. Two fields of field

corn in Gloucester County, NEW JERSEY, were found to be heavily infested. Populations were generally higher on field and sweet corn in New Jersey than in 1962. In RHODE ISLAND, armyworms, thought to be fall armyworm, caused approximately 1,000 dollars damage to a cornfield in Hopkinton, Washington County, in August.

ARMYWORM (Pseudaletia unipuncta) infestations were generally spotty over MARYLAND in the spring, with moderate to heavy damage occurring mostly to sweet corn and barley in local areas. During early August, larvae damaged Sudan grass and pearl millet in Worcester County. Larval feeding was noted on corn in DELAWARE during mid-June, especially in eastern Kent County. In ILLINOIS, there were some reports of treatments being necessary in grassy corn fields in late July and early August. Small larvae were found moving into corn from fencerows in many sections of IOWA during the second week of June; and light to moderate, spotted armyworm infestations caused damage to lower portions of corn plants in NEBRASKA in August. SOUTHERN ARMYWORM (Prodenia eridania) was heavy locally on corn in Mitchell County, GEORGIA. BEET ARMYWORM (Spodoptera exigua) was collected during the early spring consistently on corn at Iona and Estero on the lower west coast area of FLORIDA, starting earlier in the year than normal.

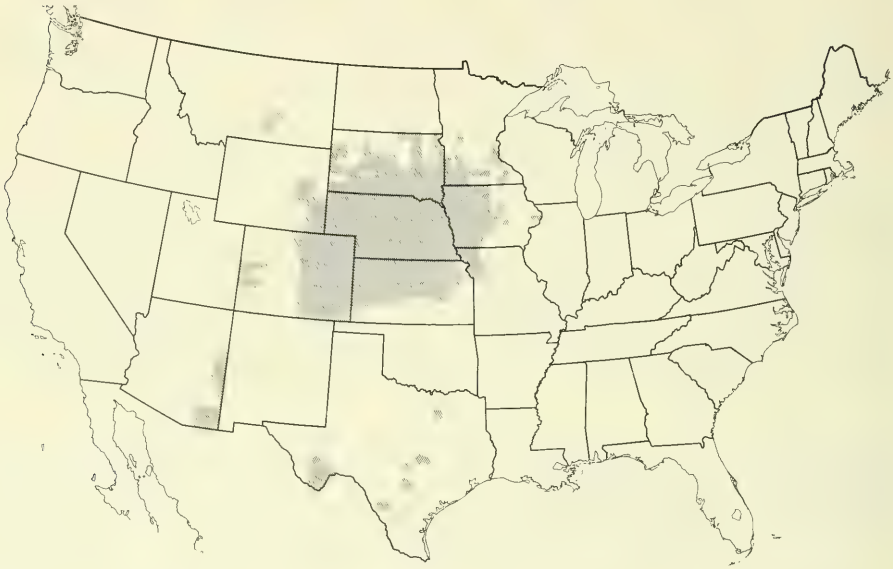
BLACK CUTWORM (Agrotis ipsilon) and VARIEGATED CUTWORM (Peridroma saucia) were responsible for much replanting of corn on the Eastern Shore and in central counties of MARYLAND. Losses were most prevalent in fields following sod. Unspecified CUTWORMS were moderately abundant in NEW HAMPSHIRE with one noticeable outbreak of black cutworm occurring in Merrimack County which caused damage to corn. In PENNSYLVANIA, corn planted on grass sod in the central area was severely damaged soon after it was up by A. gladiaria. Black cutworm damaged corn plants in all districts of ILLINOIS. An estimated 153,029 acres were replanted and 171,045 acres were treated after the corn emerged. In MISSOURI, black cutworm and DINGY CUTWORM (Feltia subgothica) damaged corn in a few scattered fields throughout the State. Overall damage by these cutworms was lighter than in the past few years. Black cutworm caused minor damage to corn in parts of east and central NEBRASKA, with extensive damage occurring to one field of corn in Otoe County in June. Also in Nebraska, WESTERN BEAN CUTWORM (Loxagrotis albicosta) was very low on corn in Dundy and Lincoln Counties in August and September. Black cutworm caused severe damage to corn seedlings in Brazos County, TEXAS, and various species of cutworms were prevalent on sweet corn in CALIFORNIA.

SALT-MARSH CATERPILLAR (Estigmene acrea) severely damaged corn in Waller, Harris and De Witt Counties, TEXAS. CORN ROOT WEBWORM (Crambus caliginosellus) caused light damage to corn in a few fields in the south central part of VIRGINIA. SORGHUM WEBWORM (Celama sorghiella) was light to heavy on heads of millet in GEORGIA; caused some damage to grain sorghum in ALABAMA; generally noneconomic in TEXAS except for a few southern areas where considerable damage resulted; and caused some very light, scattered damage in OKLAHOMA.

CORN ROOTWORMS (Diabrotica spp.), primarily WESTERN CORN ROOTWORM (D. virgifera), continued to be a problem in the north central and northeastern parts of KANSAS. Resistance to some chlorinated hydrocarbon insecticides in western corn rootworm is now extended from Phillips to Nemaha Counties, dropping down into Cloud County. Western corn rootworm, NORTHERN CORN ROOTWORM (D. longicornis), and SOUTHERN CORN ROOTWORM (D. undecimpuncta howardi) were again present in NEBRASKA. Resistance problems moved westward in the panhandle. First larval activity was found in late May and heaviest damage occurred in the southeast and northeast areas. First adult emergence occurred in late June and egg deposition occurred from late July to freezing temperatures. Adult populations were largely western corn rootworm. Southern corn rootworm adults were commonly found in a field of sweetclover in Lancaster County in late November. Some larvae caused damage to winter wheat in Burt County this past fall. In SOUTH DAKOTA, corn rootworms were reported to be causing heavy damage to corn in Yankton County by July 24. The severity of the damage continued to increase as the summer progressed.

Populations during the first week of July for Yankton, Clay and Turner Counties were 20-30 larvae per plant, with an overall development advanced to 80 percent of the population as larvae and the remaining 20 percent as pupae. Mid-July specimens of the western corn rootworm were being sent to the Department of Entomology, South Dakota State University, from as far west as Lawrence County and north as far as Brookings County. Adults of western corn rootworm were collected in the north central and northeast regions of the State by mid-August. As of September 1, 48 of the 65 South Dakota counties were infested with western corn rootworm. Resistance studies were carried out at the Northern Grain Insect Research Laboratory at Brookings. Data showed that this insect had various degrees of resistance to chlorinated hydrocarbon insecticides in the southeast part of South Dakota.

DISTRIBUTION OF WESTERN CORN ROOTWORM



Western corn rootworm was recorded in Greenlee County, ARIZONA, for the first time in 1963. Heavy infestations were found in corn and sorghum. Larvae of this species caused little or no damage to corn in areas of COLORADO where it has been a problem in the past due to the use of control measures being applied at planting time or a better use of crop rotation to reduce losses. Adults were active on the foliage and silks at time of pollination in Yuma County and some controls were applied. In WYOMING, western corn rootworm adult populations were not as severe on corn as in 1962. The first specimens were picked up on August 20 in Platte County where the largest infestations were found; counts averaged 6-8 per corn plant. Larval damage by western corn rootworm in MISSOURI was confined to a few counties in the extreme northwest area. The first adult of the season was observed on June 27. Adults were collected for the first time in the following 7 Missouri counties in 1963: Buchanan, Clinton, Caldwell, Platte, Clay, Ray and Mercer. This brings the total number of counties infested in Missouri to 15. Western corn rootworm was found in 13 MINNESOTA counties for

the first time during 1963. There are probably other counties where this insect is present, but no specimens have been collected for positive identification. The following are the counties in which the species has been found: Rock, Pipestone, Nobles, Lincoln, Jackson, Cottonwood, Redwood, Yellow Medicine, Watonwan, Pope, Blue Earth, Waseca, Mower, Olmsted, Goodhue, Dakota and Ramsey. Western corn rootworm has moved rapidly across Minnesota. It was first found in the extreme southwestern corner of the State in 1961 and can now be found on the eastern border counties of Dakota and Goodhue. Damage was also recorded for the first time in 1963. A few fields in Nobles and Rock Counties were severely lodged. Resistance to certain chlorinated hydrocarbon insecticides was indicated in these fields. Western corn rootworm spread further into IOWA in 1963. The western half of the State is now infested. Clinton County, bordering Illinois, is the most eastward spread. Western corn rootworm was first recorded in Mills and Montgomery Counties in 1953 (see CEIR 13(45):1310). Damage by this species was reported to roots of corn in several Iowa counties, and treatments were required in some instances. Western corn rootworm was regarded as being of major importance in the western one-third of the State.

Northern corn rootworm was present again in the southern half of MINNESOTA. Poor control in some fields may be due to light resistance to certain chlorinated hydrocarbon insecticides or to poor application methods. Lodging was present again, especially in the 2 southern tiers of counties. Visual damage was not as apparent generally as in other years. Some resistance has appeared in IOWA (see CEIR 13(45): 1310). Severe damage was reported to corn in Marshall, Jones and Iowa Counties treated with one or the other of two chlorinated hydrocarbon insecticides. Lodging of corn was reported to be as high as 80 percent. Damage to corn by this species in MISSOURI was lighter in 1963 than in 1962. Damage was confined to small, isolated spots in untreated fields. Larvae of northern corn rootworm caused lodging of corn in many ILLINOIS fields by late July and early August. Adults fed heavily on silks in some fields. In WISCONSIN, larvae were becoming full grown in Columbia County by the first week of July and had begun emerging in Richland and Dane Counties on July 17. Severe lodging was reported from portions of Pepin and Rusk Counties and some lodging was evident in Rock and Richland Counties. Although populations were generally high, lodging was minimal due to lack of rainfall and winds following destruction of brace roots. In INDIANA, northern corn rootworm adults fed on corn silks in Greene, Henry and Randolph Counties and caused incomplete filling of ears. Losses in a few localized areas were reported as high as 30 percent. Adults of the insect also fed on kernels and ear tips. Only slight injury was caused by northern corn rootworm in MICHIGAN. Of 90 fields selected at random in October, only three, two in Lapeer County and one in Lenawee County, showed evidence of attack. Yield reduction in these instances was estimated at 10 to 15 percent. Populations of northern corn rootworm are increasing in OHIO with the trend towards a continuous corn program throughout the State. Lodging was not a severe problem in most Ohio fields, but adult damage was widespread and severe in some cases. A few fields yielded 50 bushels per acre less than the previous year.

Southern corn rootworm adults built up some in roadsides adjoining corn fields near Ellendale, NORTH DAKOTA, and plant feeding by this species was present in ILLINOIS, but it caused little actual damage. Southern corn rootworm was responsbile for some damage to corn in ALABAMA.

CORN FLEA BEETLE (Chaetocnema pulicaria) adults were present on corn throughout DELAWARE by mid-May, with most injury occurring during early and mid-July. During May, numbers on young sweet corn were heavy in many fields in Caroline, Montgomery and Queen Annes Counties, MARYLAND. The beetle was almost nonexistent in NEW JERSEY, and scarce in most areas of ILLINOIS. One noteworthy exception in Illinois was in the southwest district on April 29 when counts of 250 per 100 sweeps were found on a field of oats that had noticeable feeding injury. Corn flea beetle was of little concern in KANSAS and some feeding was observed on corn in MISSOURI. Adults of another FLEA BEETLE (Systena frontalis) severely damaged one field of corn in Piatt County, ILLINOIS, by feeding on the leaves of

plants. DESERT CORN FLEA BEETLE (Chaetocnema ectypa) was approximately normal in numbers and/or injury in UTAH.

Feeding by adults of BILLBUGS (Sphenophorus spp.) was more noticeable than usual in southern MICHIGAN corn fields in June. In GEORGIA, light to moderate infestations of S. callosus were noted on corn, but most of them were of a light nature. MAIZE BILLBUG (S. maidis) was observed feeding on corn in MISSOURI.

SEED-CORN BEETLE (Agonoderus lecontei) caused heavy damage to a newly planted field of milo in Hitchcock County, NEBRASKA, in mid-May, but was of little economic importance in KANSAS. DUSKY SAP BEETLE (Carpophilus lugubris) adults were first noted this season in DELAWARE during late June and generally abundant on corn by mid-July. Rather high infestations occurred in ears during mid to late August in Sussex County. Sap beetles, especially dusky sap beetle, were common and infested ears and tassels of corn in all areas of MARYLAND. Some infestations were noted in MISSOURI.

JAPANESE BEETLE (Popillia japonica) adults were generally present in MARYLAND, but considerably lighter than in 1962 on corn and soybeans in most sections. BUMBLE FLOWER BEETLE (Euphoria inda) was reported on corn in several parts of MONTANA during the fall. SUGARCANE BEETLE (Euetheola rugiceps) became a pest of early corn in several central ALABAMA counties as has been true in the past in isolated fields. Treatment for this pest and other soil pests has been a standard practice on farms known to have been damaged in prior years.

An unspecified WIREWORM caused 10 percent loss of stands of field corn in Ware and Pierce Counties, GEORGIA. Melanotus communis continued to be abundant in older sugarcane areas of FLORIDA under cultivation. If a new cane field had previously been in sweet corn production, then wireworms were apt to be a problem. M. communis and SOUTHERN POTATO WIREWORM (Conoderus falli) were both a problem on sweet corn at Belle Glade, Florida. Both species were hard to control in that area, and southern potato wireworm in particular was resistant to chlorinated hydrocarbon insecticides. M. communis severely damaged field corn in a number of mountain counties of NORTH CAROLINA during early June. As high as one-third of the plants in a 4-acre field in Clay County was killed and large areas were killed in other fields observed. No soil insecticides had been used in these fields. This species was also present in a Beaufort County, North Carolina, cornfield which was reported to have been heavily damaged during the spring despite the use of recommended material prior to planting. Melanotus spp. caused severe damage to seedling corn in several areas of VIRGINIA in late June. Undetermined wireworms caused heavy damage to a few fields in Allegany and Wicomico Counties, MARYLAND, and serious damage to corn was reported by two county agricultural agents in the central part of NEW JERSEY. Damage to field corn by undetermined wireworms was more prevalent in OHIO than during the past three years. Some fields required replanting. However, there is not a large percentage of cornland infested in Ohio. In ILLINOIS, Aeolus spp. damaged approximately 0.5 percent of the corn plants in the west district, 5.5 percent in the central district and 0.2 percent in the west-southwest district. There were also reports of damage from the northwest district of Illinois. Damage by Melanotus spp. was reported in fields in the southwest and central parts of MISSOURI. More damage by wireworms was evident in the central area of the State in 1963 than in the last five years. Larvae of an unidentified wireworm caused damage to a field of milo in Buffalo County, NEBRASKA.

CORN LEAF APHID (Rhopalosiphum maidis) was reported severe early in the season on sweet corn at Zellwood, FLORIDA; and it became quite heavy in all areas of ALABAMA at times, but damage was difficult to estimate in the latter State. Heavy infestations in Alabama were followed by extreme population buildups of lady beetles, syrphid fly larvae and parasitic hymenopterons. Corn leaf aphid was more of a problem in NEW JERSEY than in 1962 on field and sweet corn. Only a few were found on corn over RHODE ISLAND, but evidence of heavy infestations

was noted. Corn leaf aphid became conspicuous on tassels and ear tips of sweet corn at Lomontville, NEW YORK, on July 22. In DELAWARE, very high infestations occurred on some plants in most corn fields throughout the State. The aphid was the heaviest in recent years on field and sweet corn in all sections of MARYLAND. Tassel and leaf infestations of from 10 to 50 percent were widespread and, in many fields, ear development was noticeably retarded. It severely infested several fields of corn in Charles City County, VIRGINIA, in late July. Populations were low in OHIO throughout the season. An October survey in MICHIGAN of corn-growing areas of the Lower Peninsula revealed evidence of general high corn leaf aphid populations which may have caused heavier than normal injury during the droughty periods of 1963.

Corn leaf aphid was first noted on commercial sweet corn in WISCONSIN in Walworth County on July 5. Populations became numerous enough by mid-July to cause whitening of leaves in southwestern Wisconsin counties, and large numbers prevailed in scattered fields in various areas of that State. Populations dropped off by mid-August in Wisconsin, but not before some treatment was applied in eastern counties. Corn leaf aphid was extremely abundant on tassels of most corn in IOWA during mid-July, and it was generally higher than in previous years in SOUTH DAKOTA. Many fields had 100 percent infestations in the latter State, with 20 percent of the tassels being completely covered with honeydew. Numbers were also unusually high on corn in NORTH DAKOTA; and infestations in NEBRASKA were higher than normal in July and August in the eastern half of the State, causing light to moderate damage to corn tassels and milo heads. Corn leaf aphid was noneconomic on corn and sorghum in KANSAS, and present on corn in MISSOURI. The aphid was generally light in OKLAHOMA, with periodic, locally heavy populations present on grain sorghum throughout the growing season. Corn leaf aphid attacked grain sorghum over widely scattered areas of TEXAS, but beneficial insects and other factors usually kept the aphid under control. The pest built up on corn in Torrance County, NEW MEXICO, where a number of growers were forced to treat their fields.

Corn leaf aphid caused little or no damage to corn in COLORADO although colonies were present on 10 percent of the plants in some fields. This species and THRIPS were present on forage and grain sorghum in light to moderate numbers and very little damage resulted. In Baca and Las Animas Counties, Colorado, corn leaf aphid caused some discoloration of broomcorn brushes late in August, but populations were not sufficient to cause any general reduction in the quality of the broomcorn. Corn leaf aphid infestations in WYOMING were higher than in 1962. Heavy infestations occurred in Goshen, Platte and in Washakie Counties. The largest populations occurred during August. In UTAH, corn leaf aphid was below average in numbers or importance during the season on corn. Light to medium infestations were noted on corn in Orange and Fresno Counties, CALIFORNIA; and heavy infestations developed in a number of sweet corn fields in southwestern IDAHO in August.

CORN ROOT APHID (Anuraphis maidiradicis) populations in June caused stunting of young corn plants in Madison County, NEBRASKA, and caused some areas of a cornfield to yellow in Dodge County, same State. YELLOW SUGARCANE APHID (Sipha flava) infestations were erratic and localized on sugarcane in FLORIDA, but generally on the increase. In MAINE, a very heavy infestation of an unidentified APHID was noted on sweet corn in Eddington, Penobscot County, in late August. Damage was light at that time and no further reports were received.

CHINCH BUG (Blissus leucopterus) populations in ILLINOIS were a little higher on corn than in 1962. Treatments were applied to marginal rows of corn in some fields in the central and east districts. The fall survey in Illinois showed a remarkable increase in populations in the central district and in Bond and Clinton Counties. In NEBRASKA, corn was damaged in Colfax County in mid-August. The fall survey in that State revealed scattered populations in the southeast area in October. Populations in KANSAS remained at a low level; only a few sorghum fields in the south central area were damaged. Chinch bug was observed

feeding on corn in MISSOURI, and infestations on grain sorghum in TEXAS were similar to those encountered in 1962. Chinch bug was reported to have caused some damage to corn and grain sorghum during 1963 in ALABAMA. Infestations of a CHINCH BUG (Blissus sp.) were unusually abundant on corn in southern LOUISIANA in May; some fields in St. Landry Parish required treatments.

A WEST INDIAN SUGARCANE DELPHACID (Saccharosydne saccharivora) was heavier on sugarcane in FLORIDA during the autumn of 1963 than in either of the two previous years.

SORGHUM MIDGE (Contarinia sorghicola) was heavy on milo in Kings County, CALIFORNIA, late in the season. Infestations were found on sorghum in three ARIZONA counties: Graham, Cochise and Greenlee. Populations were generally small and very scattered. In NEW MEXICO, sorghum midge caused light to heavy losses to late-planted grain sorghum in Lea County; and light to moderate infestations were found on grain sorghum in Curry, Roosevelt and Quay Counties. Growers obtained effective chemical control of sorghum midge in Lea County where treatment was properly timed and applied correctly. Infestations in the high plains of TEXAS warranted control measures over much of the area. The infestation in this area represented a sizable increase over 1962,and late-planted, nontreated grain in the area supported moderate to heavy populations and yield losses were significant. In the south plains area of Texas, infestations of sorghum midge were rather general but less severe than in 1962 due to earlier planting dates and preventive treatments. Infestations were generally less severe in the eastern half of Texas than in 1962 except in late-planted fields where damage was heavy. In ALABAMA, some damage to grain sorghum was reported.

SEED-CORN MAGGOT (Hylemya platura) injury necessitated replanting a few corn fields in Mason and Sanilac Counties, MICHIGAN; and some early planted corn in PENNSYLVANIA were replanted because of damage by this fly. CORN LEAF BLOTCH MINER (Agromyza parvicornis) was present during June on corn throughout all of MISSOURI except the southeast.

Several species of THRIPS were very abundant on young corn in MARYLAND; streaking was noticeable. Silvering was evident on corn in ILLINOIS during July; feeding was observed in MISSOURI; and some damage occurred to corn leaves in Dodge and Saunders Counties, NEBRASKA, in June. Thrips and corn leaf aphid (Rhopalosiphum maidis) were light to moderate on sorghum, but very little damage resulted.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) caused heavy damage to a field of corn in Meriwether County, GEORGIA.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was late in starting in CALIFORNIA. Populations were not as severe as in past years in most locations. Light to medium populations were noted on corn in Sacramento County and heavy numbers were found on corn in Santa Clara County. SPIDER MITES began building up on sweet corn seed fields in the southwestern part of IDAHO just as the corn began to tassel. Infestations were heavy on corn in Churchill and Lincoln Counties, NEVADA, in August and early September. In NEW MEXICO, heavy populations of unspecified species dried up foliage of corn which was to be used for ensilage in fields near Dexter, Chaves County, Belen and Los Lunas, Valencia County, and in Torrance County. Spider mites were also a problem on sweet corn in San Juan County, New Mexico, and they infested grain sorghum in Brazos County, TEXAS. Spider mites appeared a month early on corn in all areas of COLORADO and it was necessary for controls to be applied to some fields in Prowers, Bent, Otero, Crowley, Pueblo, Montezuma, Montrose, Delta, Mesa, Larimer, Boulder, Adams, Weld, Morgan, Logan and Sedgwick Counties. In the Arkansas Valley of Colorado, there was some damage to the foliage of grain sorghum, but no damage to heads was noted as they were filled at the time the populations started to build up to damaging levels. Spider mites were common on corn in ILLINOIS, but no damage was observed or reported. BANKS GRASS MITE (Oligonychus pratensis) populations were heavy in Scotts Bluff County, NEBRASKA, and they caused damage to corn.

Moderate damage occurred in Phelps County, same State. Normally, infestations of this mite are in the western half of Nebraska, but generally light to moderate infestations were found as far east as Colfax County.

An undetermined SLUG injured several acres of young corn in Garrett County, MARYLAND, during June.

An estimated 4,049,318 acres were treated to control SOIL INSECTS before corn was planted in ILLINOIS in 1963.

SURVEY OF PARASITES OF THE ALFALFA WEEVIL IN WESTERN MASSACHUSETTS [1]

F. R. Shaw [2] and W. H. Ziener [3]

During surveys and investigations in 1963 on the biology of the alfalfa weevil, Hypera postica (Gyll.), several parasites were found.

On August 1, 1963, we discovered a number of parasitized pupae of the alfalfa weevil in the vicinity of Mill River. To our knowledge there had been no release of introduced parasites of the alfalfa weevil within 80 miles of this location. Furthermore, the pupation habits of this parasite did not agree with those of Bathyplectes curculionis (Thoms.) which had been released in Massachusetts in 1962. Bathyplectes larvae spin a cocoon prior to pupation, the present parasite made no cocoon.

Specimens of larvae and adults of the parasite were sent to the U. S. National Museum for identification. They were identified as Itoplectis conquisitor Say by L. M. Walkley. Miss Walkley indicated that this was the first record she had received of parasitism of the alfalfa weevil by Itoplectis conquisitor.

In the fall of 1963, we also found eggs of the alfalfa weevil which had been parasitized. We were able to rear specimens which were identified by Dr. B. D. Burks as Patasson luna (Girault).

We also found a dipterous larva (first instar), which we assumed to be a tachinid, in a pupa of the alfalfa weevil, but were not able to rear this to the adult stage.

In addition to the insects already mentioned, we found adult weevils infected by fungi. These were sent to Dr. E. A. Steinhaus of the University of California. They were examined by G. A. Marsh who reported that two fungi were present. One was Beauveria bassiana which is widespread and pathogenic to many insects. The second, he assigned to the genus Fusarium and indicated that this group usually are secondary saprophytes. He was unable to detect the actual cause of the death of the beetles infected with Fusarium.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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VOL. 14 No. 10 March 6, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 March 6, 1964 Number 10

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Increased damage by a WEEVIL (Hypera brunneipennis) found in alfalfa in Yuma and Maricopa Counties, Arizona. Eggs of ALFALFA WEEVIL (H. postica) present in stems of alfalfa in several areas of Georgia, but no larvae found. GREENBUG and other grain aphids continue low or noneconomic in the Southwest. (pp. 141-142).

GREEN PEACH APHID continues to increase on vegetables in Yuma County, Arizona, and increases noted on sugar beets and vegetables in Maricopa and Pinal Counties, same State. (p. 143).

Survey of a PINE SAWFLY (Neodiprion pratti pratti) in Virginia indicated that populations have decreased appreciably from those present in 1963. Noticeable defoliation expected in only few small areas. (p. 144).

DETECTION

OLD-HOUSE BORER (Hylotrupes bajulus) reported for the first time in Missouri. (p. 147). IMPORTED FIRE ANT (Solenopsis saevissima richteri) collected for first time in Lowndes County, Georgia. (p. 148).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 145).

Hawaiian Insect Notes. (p. 150).

Summary of Insect Conditions in the United States - 1963

Cereal and Forage Insects (continued).

Alfalfa, Clover, Sweetclover and Vetch Insects. (p. 151).
Lawn, Pasture and Rangeland Insects. (p. 162).
Soybean and Peanut Insects. (p. 166).
Sunflower, Safflower and Flax Insects. (p. 170).

Reports in this issue are for week ending February 28 unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MARCH 1964

In contrast to the cold weather of February, the Weather Bureau's 30-day outlook for March calls for temperatures to average above seasonal normals east of the Continental Divide except for near normal in States bordering the Gulf of Mexico and in New England. However, below normal average temperatures are anticipated west of the divide. Precipitation is expected to exceed normal west of the Continental Divide and also in a broad swath extending from the west gulf coast through the Tennessee and Ohio Valleys and the southern and central Appalachians. Subnormal amounts are indicated from the northern Plains eastward to the western Great Lakes. In unspecified areas near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING MARCH 2

On Monday morning, February 24, a storm was intensifying over southern Saskatchewan, Canada. Subzero cold flowed into Minnesota, Wisconsin, Iowa, Illinois, and Michigan. Pellston, Michigan, and Hibbing, Minnesota, registered 21° below zero. Northerly winds reached 60 m.p.h. at some locations in the northern Rocky Mountains and northern Great Plains. The arctic front continued southward. Six inches of new snow fell at Lander, Wyoming. Heavy rain fell along the gulf coast. Subzero temperatures occurred over the northern Appalachians and subfreezing weather reached the Gulf of Mexico. Tallahassee, Florida, registered 24° Monday morning. Cold air continued to pour into the northern midsection on Tuesday. Gunflint Lake, Minnesota, registered 28° below zero on Tuesday morning. By midday Tuesday, rain and snow fell over the highlands of the Middle Atlantic States. Light snow slicked the highways in the central Great Plains. By Wednesday, the cold front stretched from northern New England to Texas and snow fell over a band 200 miles wide extending from Ohio to New York.

A disturbance centered over the Gulf of Mexico produced generous rains along the coast on Thursday. Tallahassee, Florida, registered 5.59 inches and Jacksonville 3.40 inches on that day. The disturbance blanketed the Southeastern States with low clouds, fog, drizzle, and rain and delayed aircraft operations early Friday morning. As the storm moved up the coast, it produced several inches of snow over the southern Appalachians. Temperatures climbed into the 80's over parts of the Florida Peninsula on Thursday and Miami registered 87° on Friday. As the storm continued up the coast, heavy snow fell over parts of West Virginia, Virginia, and northeastward to New Hampshire. As this storm moved up the Atlantic coast, clear skies and mild temperatures prevailed in the Midwest. Southwest winds exceeded 40 m.p.h. at some locations from Oklahoma to the Great Lakes. In some sections of the Great Plains and Mississippi River Valley, the winds reached 50 m.p.h., causing some soil blowing. Afternoon temperatures climbed into the 50's from Texas to Wisconsin. Amarillo, Texas, registered 64° and La Crosse, Wisconsin, 58° on Saturday. Mild, windy weather continued over mid-America on Sunday and temperatures in the 60's were common from the Gulf of Mexico to northern Missouri. Chinooks, blowing down the eastern slopes of the Rockies, warmed the northern Great Plains. Temperatures in the 50's were common over the Dakotas and parts of Montana on Sunday afternoon.

Late in the week, another storm moved into the Pacific Northwest. It produced rains along the coast from Washington to Santa Maria, California, and snow over the higher elevations inland. At the end of the week, another arctic air mass north of Montana was about ready to move into the northern Great Plains -- a situation similar to the pattern at the beginning of the week. Temperatures (Weather continued on page 148).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - TEXAS - Survey conducted January 24-31 in following 20 panhandle counties: Armstrong, Donley, Collingsworth, Wheeler, Randall, Swisher, Briscoe, Floyd, Hale, Potter, Deaf Smith, Castro, Parmer, Oldham, Hartley, Dallam, Sherman, Moore, Hutchinson and Hansford. Greenbug found in all but Hartley and Dallam Counties. Ranged 0-5 per foot in most counties; however, in Sherman and Parmer Counties, counts ranged 20-25 per linear foot in one irrigated field in each county. Dryland wheat fields were suffering from lack of moisture previous to the heavy snow, more in northern panhandle than in the south. Survey made February 8-11 in following 15 rolling plains counties: Childress, Hardeman, Wilbarger, Wichita, Montague, Tarrant, Parker, Palo Pinto, Shackleford, Jones, Haskell, Stonewall, Kent, Dickens and Crosby. Greenbug found in Wilbarger, Shackleford, Stonewall, Kent, Dickens and Crosby Counties; however, populations ranged less than 5 per linear foot. Wheat in these 15 counties in good condition. (Daniels). OKLAHOMA - Continues at noneconomic levels (fewer than 10 per linear foot) in all counties checked in northwest, north central and central portions of State. Checks in Grandfield area, Tillman County, negative. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in all areas. (Ark. Ins. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - TEXAS - Few found in Wilbarger County during greenbug survey February 8-11. (Daniels). OKLAHOMA - Remains very low throughout State, although most common species in all areas. Counts fewer than 10 per linear foot. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in all areas. (Ark. Ins. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Small numbers becoming evident in scattered areas throughout northwest, north central and central areas. (Okla. Coop. Sur.). CALIFORNIA - Adults light on barley plantings in Coalinga and Five Points, Fresno County. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Present in very light numbers in some localities of northwest, north central and central areas. (Okla. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Heaviest infestations noted in Hitchcock area, Blaine County (central area); ranged 1-3 per linear foot. Lighter counts of 1 per foot observed in scattered localities of Grant County (northwest area). (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - FLORIDA - Light on corn ears at Homestead, Dade County. (Knowles, Feb. 17).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Light on ears of corn at Homestead, Dade County. (Knowles, Feb. 17).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Light infestations noted in Decatur and Thomas Counties (northwest); Trego and Ness Counties (west central); Phillips, Rooks and Osborne Counties (north central); and Ellis, Russell and Rush Counties (central). None found in samples from southwest and south central districts. Samples collected January 27, 28, and February 18, 19. (Somsen).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Overwintering colonies noted on samples from Norton, Decatur, Rawlins and Thomas Counties (northwest); Trego County (west central); Haskell, Seward, Meade and Clark Counties (southwest); Phillips and Osborne Counties (north central); Rush County (central); and Comanche and Barber Counties (south central). (Somsen).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Populations increased slightly in alfalfa in Maricopa and Pinal Counties. Infestations appear generally distributed over entire area. (Ariz. Coop. Sur.). NEW MEXICO - Continues light in alfalfa in southern counties. (N. M. Coop. Rpt.). OKLAHOMA - Counts light on overwintering alfalfa in Kay and Garfield Counties. Some reproduction noted in

Kay County. (Okla. Coop. Sur.). FLORIDA - Nymphs and adults ranged 350-400 per 400 sweeps of untreated Hairy Peruvian alfalfa; few weeds present. (Fla. Coop. Sur., Mead).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increasing slowly in alfalfa in Maricopa and Pinal Counties; no increase noted in Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Occasional specimens found in Garfield County alfalfa. (Okla. Coop. Sur.). ARKANSAS - Survey negative in Miller County (southwest). (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in alfalfa in Maricopa and Pinal Counties; remain constant in Yuma County alfalfa. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Moderate to light in alfalfa in Yuma, Maricopa and Pinal Counties; averaged 20 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - Larvae light on alfalfa in Helm area, Fresno County. (Cal. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - FLORIDA - Total of 50 small to medium sized larvae collected in 400 sweeps in Hairy Peruvian alfalfa under ideal conditions; few weeds present. (Fla. Coop. Sur., Mead).

ALFALFA WEEVIL (Hypera postica) - GEORGIA - Eggs present in stems of alfalfa in several fields surveyed in northwest, north and northeast areas; however, no larvae found. (Johnson).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Increased damage found in alfalfa in Yuma and Maricopa Counties. In Yuma County, 10 percent of terminal buds damaged in Yuma Valley and 60 percent on Yuma Mesa. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Increasing on bottom leaves of alfalfa in Yuma County; small numbers also noted in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

FRUIT INSECTS

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Adults heavy on citrus in Hollister, San Benito County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Medium populations reported on citrus trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Ranged light to medium on dooryard citrus in Fresno, Fresno County. (Cal. Coop. Rpt.).

A LEAF-FOOTED BUG (Leptoglossus zonatus) - CALIFORNIA - Adults light on Valencia orange trees in Vista, San Diego County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Total of 63,597 trees inspected on 183 properties; 1,530 trees found infested on 15 properties in Padilla and Guemez. Inspections in Mainero and Villagran negative. Reports from 13 States indicate need for liberation of parasites on 34 properties; 19 properties with high parasite populations available for capture. Parasites received at Coyoacan Laboratory, Mexico City, or captured for colonization near place of origin, totaled 89,670. Parasitism generally high in southern Tamaulipas. Chemical Control Zone - Inspection of 85,003 trees on 1,567 properties in States of Tamaulipas, Nuevo Leon, Sonora and Baja California negative; 11,080 nursery trees in Municipios of Hermosillo, Sonora and Monterrey, Nuevo Leon, included in total. Fourth spray treatment applied to 533 primary and secondary host trees on 5 properties in Municipio Villa de Santiago, Nuevo Leon;

this application necessary because of rains in spray area shortly after first application. (PPC, Mex. Reg., Jan. Rpt.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Heavy populations continue to damage mandarin orange and tangelo as fruit reaches maturity. Damage was severe on early maturing varieties; nymphs and adults damaging varieties maturing at present. This is first season such damage by this species has been evident in northern San Diego County. (Cal. Coop. Rpt.).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Larvae light in orange fruit in Hollister, San Benito County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 6,309 inspections made of 1,824 traps on 912 properties in Baja California negative. Total of 110 traps on 65 properties inspected 458 times in Sonora also negative. Third and last spraying of Colonia Independencia in Municipio Tijuana, Baja California, completed January 10. (PPC, Mex. Reg., Jan. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Inspection of 3,845 traps in the States of Chiapas, Campeche, Oaxaca, Tabasco, Guerrero, Yucatan, Veracruz, Tamaulipas, Nuevo Leon, Hidalgo, Mexico, Jalisco, Colima, Peubla, Sinaloa, Sonora and Baja California and the Federal District and the Territory of Quintana Roo negative. Traps inspected 7,581 times. (PPC, Mex. Reg., Jan. Rpt.).

GRAPE ROOT BORER (Vitacea polistiformis) - VIRGINIA - Heavy on roots of grapevines at location in Blacksburg, Montgomery County. (Tarpley, Osborne; Feb. 15).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Relatively heavy on some late apple varieties and light on early bearing trees in Coosa County. (Barwood).

TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Slight increases noted on lettuce in Maricopa County; however, decreasing populations found in Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Lightly damaged 2 percent of 200 cabbage plants at Sanford, Seminole County. (Desin). CALIFORNIA - Medium on lettuce plantings in Winterhaven, Imperial County. (Cal. Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Surveys in GEORGIA revealed only 3 newly infested properties; 13 properties released from regulation in Lowndes County, 6 in Lanier County, 5 in Thomas County and 1 in Coffee County. Infestations in Thomas and Coffee Counties were last of known infestations in those counties. In LOUISIANA, 14 properties released from regulation and 15 newly infested properties found in known infested parishes. (PPC, South. Reg., Jan. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues to increase on vegetables in Yuma County; counts averaged 8-10 per leaf. Increases also noted on sugar beets and vegetables in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Infested 75 percent of 200 celery plants at Sanford, Seminole County. (Desin).

A SPIDER MITE (Tetranychus sp.) - NORTH CAROLINA - Infesting 4-5 acres of strawberry in Columbus County; grower experiencing difficulty with control. (Martin, Jones).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Larvae medium on Douglas-fir in general area of Angwin, Napa County. (Cal. Coop. Rpt.).

A TIP MOTH (probably Rhyacionia sp.) - NEW MEXICO - Damaging terminal shoots of pinyon pines in area southwest of Datil, Cibola National Forest; few larvae found. (N. M. Coop. Rpt.).

A TENT CATERPILLAR (Malacosoma sp.) - NEW MEXICO - Occasional tent noted in pinyon pines near Datil, Cibola National Forest. Larvae still alive and feeding on needles. (N. M. Coop. Rpt.).

A BARK BEETLE (Pityophthorus carmeli) - CALIFORNIA - Medium in Torrey pines in Torrey Pines State Reserve at Del Mar, San Diego County. (Cal. Coop. Rpt.).

A PINE APHID (Essigella californica) - CALIFORNIA - All stages medium on 3-needle pines in Colton, San Bernardino County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW MEXICO - Probably this species, heavy on pinyon pines in area near Magdalena, Cibola National Forest. (N. M. Coop. Rpt.).

JUNIPER SCALE (Diaspis carueli) - FLORIDA - Moderate on leaves of shore juniper (Juniperus conferta) at Largo, Pinellas County. (Bingaman, Feb. 17).

A GALL MIDGE (Contarinia pseudotsugae) - CALIFORNIA - Light on Douglas-fir in Angwin, Napa County. (Cal. Coop. Rpt.).

A PINE SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Survey indicates populations have decreased appreciably from those present in 1963. Defoliation of native pines expected to be noticeable (20-70 percent) only in few small areas; throughout remainder of infested area, larvae will cause less than 20 percent defoliation. Eggs expected to hatch about April. (Morris, Va. Div. Forestry).

A CONIFER SPIDER MITE (Oligonychus coniferarum) - CALIFORNIA - Heavy on Juniperus sabina in La Habra, Orange County. (Cal. Coop. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Limited scouting conducted in VERMONT and NEW HAMPSHIRE; several small infestations found in latter State in areas known infested in 1963. (PPC, East. Reg., Jan. Rpt.).

GYPSY MOTH (Porthetria dispar) - Scouting of positive trapsites in MAINE and VERMONT completed; results negative. Infestations found on or in vicinity of 10 of 27 lumberyards scouted in western section of MASSACHUSETTS; 27 trailer parks inspected, with 9 infested in varying degrees. To date, 26 egg masses found at 8 sites where moths trapped last summer in NEW JERSEY; surveys of nurseries and common carrier sites negative. (PPC, East. Reg., Jan. Rpt.).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Larvae heavy in juniper plants in Goleta, Santa Barbara County. (Cal. Coop. Rpt.).

AN OLETHREUTID MOTH (Epinotia subviridis) - CALIFORNIA - Heavy in juniper in Inverness, Marin County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Moderate on leaves of Chrysanthemum sp. at Sanford, Seminole County. (Youtsey).

COTTONY-CUSHION SCALE (Icerya purchasi) - FLORIDA - Severe on leaves and stem of Pittosporum tobira at Lake Placid, Highlands County (McAuley, Nelson, Feb. 18); general on leaves and stem of Pittosporum sp. at Greenville, Jefferson County (Miller, Feb. 17).

CACTUS SCALE (Diaspis echinocacti) - ALABAMA - Heavy on old potted cactus in Northport home, Tuscaloosa County. (McGlohon). CALIFORNIA - Medium on cactus plants in Corona, Riverside County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Unusually heavy on roses under and near heavily infested apple and pear trees on farm in Lee County. (Bagby).

Coccids in California - Lepidosaphes ulmi, Saissetia oleae and Aspidiotus hederae heavy on redbud trees in the La Purisima Mission grounds. Mycetococcus ehrhorni medium on California live oaks in Lompoc, Santa Barbara County. (Cal. Coop. Rpt.).

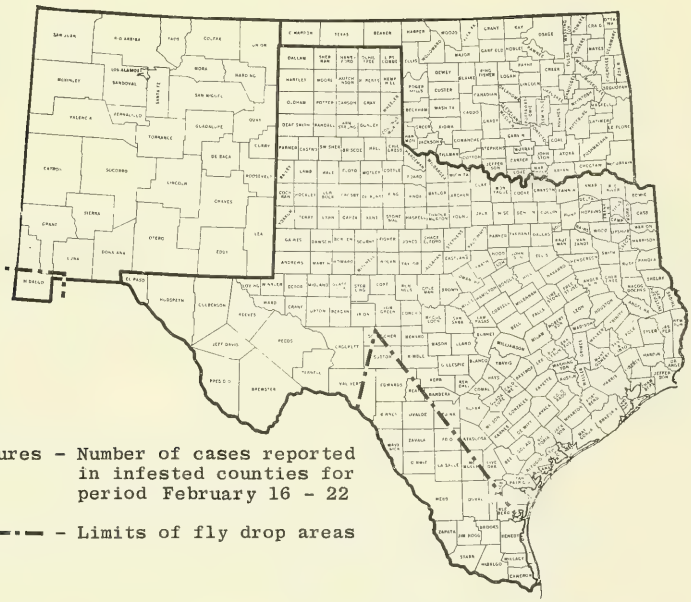
CITRUS RED MITE (Panonychus citri) - FLORIDA - Moderate on Elaeagnus fruitlandii at Macclenny, Baker County. (Collins).

A SNAIL (Oxyloma effusa) - FLORIDA - Heavy numbers occurring in soil about philodendron seedlings at Apopka, Orange County. (Musgrove, Feb. 19).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

No screw-worms were reported during the period February 16 - 22 from the eradication area. The reporting of nonscrew-worm larvae continues good. Approximately 13 million sterile flies were released in TEXAS and 225,000 in NEW MEXICO during the period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 16 - 22

-·-·- - Limits of fly drop areas

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Populations reported declining in Bryan County (south central), with most grubs having emerged. Ranged 6-10 per head on 50 percent of cattle checked in Okmulgee County (east central). Counts continue light to moderate in Garvin County (south central). Counts declining in Payne County; averaged 3 per head on yearling cattle checked. (Okla. Coop. Sur.). GEORGIA - Averaged 0-7.2 grubs per animal in several beef herds checked January 20 - February 14 from southern through northern areas. (Roberts). NORTH CAROLINA - Larvae reported in CEIR 14(5): 69 have now left backs of cattle. (Mount).

NORTHERN CATTLE GRUB (Hypoderma bovis) - NORTH CAROLINA - Larvae present in backs of native beef animals examined in Wake County February 25; one second-stage larva found in one animal and one new third-stage found in another animal, of 24 examined. (Mount).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Appearing in backs of cattle in Cache Valley, Cache County, during past 3 weeks. Heavy in young stock raised in Grantsville area, Tooele County. (Knowlton).

MOSQUITOES - FLORIDA - Dipping in rainwater pools between U.S. Highway 441 and swamp forest in Santa Fe River floodplain (Columbia County) revealed Culex restuans larvae and pupae as most abundant, with Culiseta inornata larvae and pupae second most abundant; lesser numbers of fourth-stage larvae of Anopheles quadrimaculatus and Culex territans, and Aedes vexans pupae were also taken. Latter species has probably been much more abundant and sampling showed only late developing individuals of brood. (Mead, Feb. 22). Aedes mitchellae taken biting man in suburban area of Gainesville, Alachua County. Ten adults collected while making 400 sweeps of alfalfa at Gainesville; too rubbed for determination. (Mead).

FACE FLY (Musca autumnalis) - VIRGINIA - Adults common in home in Clinchport, Scott County; similar infestations noted throughout county. (Tarpley, Rich; Feb. 12).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - GEORGIA - Infestations ranged very light to 3.23 per square inch in beef herds checked January 30 - February 14 from southern through northern areas. (Roberts).

CATTLE LICE - UTAH - Numerous in some herds and very heavy on some cattle in Rich County. (Knowlton). Conspicuous on some beef cattle in western Box Elder County and on some range cattle in Kane County. Controls applied to 1,300 head in Juab County. (Knowlton, Esplin). OKLAHOMA - Populations reported moderate from east central, south central, northeast and northwest areas. Approximately 15 percent of infested cattle sprayed in Bryan County area. (Okla. Coop. Sur.). GEORGIA - Only one specimen of Haematopinus eurysternus (short-nosed cattle louse) collected in survey of beef herds January 20 - February 14 from southern through northern areas. (Roberts).

HOG LOUSE (Haematopinus suis) - ALABAMA - Light on few brood sows in Lee County. Numerous infestations reported in Covington County. (Jones, Pike). OKLAHOMA - Heavy in Bryan County (south central) and moderate in Okmulgee County (east central). (Okla. Coop. Sur.).

VESPID WASPS - UTAH - Annoying in some school rooms at Logan, Cache County. (Knowlton).

A CANARY LUNG MITE (Sternostoma tracheacolum) - CALIFORNIA - Infesting canaries in local aviary in San Luis Obispo, San Luis Obispo County; several birds have died from infection in this aviary. Occasional infestations of individual pet canaries have been reported during past few months. (Cal. Coop. Rpt.).

BLACK-LEGGED TICK (Ixodes scapularis) - FLORIDA - Fed on human at Englewood, Sarasota County. (Frederic, Feb. 12).

HOUSEHOLD AND STRUCTURAL INSECTS

OLD-HOUSE BORER (Hylotrupes bajulus) - MISSOURI - Collected from wood in box spring for bed. Bed brought from an Atlantic Coast State in 1959. This is first time this species reported from State. Det. by F. E. Wood. (Houser).

A BARK BEETLE (Pseudopityophthorus pubipennis) - CALIFORNIA - Adults heavy in household woodwork in Morro Bay, San Luis Obispo County. Heavy adult numbers also occurring in residence in Susanville, Lassen County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - NORTH CAROLINA - Large numbers present in Wilson County home. Det. by D. L. Wray. (Mount).

FLIES - MARYLAND - Undetermined, large species annoying in homes in Baltimore and Prince Georges Counties. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Winged forms appearing in homes in Montgomery and Talbot Counties. (U. Md., Ent. Dept.).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Alates swarmed in house at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

LITTLE BLACK ANT (Monomorium minimum) - OKLAHOMA - Reproductive forms noted in several homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - NORTH CAROLINA - Large numbers present in Davidson County home. Det. by D. L. Wray. (Mount). CALIFORNIA - Beginning to invade residences in Sacramento, Sacramento County. This is unusually early for movement to begin. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

BROWN SPIDER BEETLE (Ptinus clavipes) - CALIFORNIA - Adults heavy in dry dogfood in Laytonville, Mendocino County. (Cal. Coop. Rpt.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - CALIFORNIA - Extremely heavy in horse feed in stable at Clovis, Fresno County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

BROWN LACEWINGS (Micromus spp.) - ALABAMA - These and undetermined ichneumons common at night lights in central part of State. (McQueen).

PRAYING MANTIDS - ALABAMA - Egg cases of undetermined species numerous in apple orchards in Coosa County. Hatching not yet underway. (Sessions).

MISCELLANEOUS INSECTS

A GELECHIID MOTH (Gnorimoschema plaesiosema) - CALIFORNIA - Larvae medium in nightshade plants in Oxnard, Ventura County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Treatment completed in Gadsden County, FLORIDA, with exception of Seaboard Railroad property. Area surrounding peanut-processing plant in Jackson County treated. Highway shoulders in Jefferson County, GEORGIA, treated. Inspection of pecan nursery at Lumberton, MISSISSIPPI, revealed infestation present on acreage planted this year. Treatment completed on infestation at Farmerville, Union Parish, LOUISIANA. Ground treatment completed in small areas of Craighead and Greene Counties, ARKANSAS. Ten thousand bales of hay stored on infested ground in Madison County, TENNESSEE, fumigated. Larval surveys in the CAROLINAS revealed no new infestations and only minor extensions to known infestations. (PPC, South. Reg., Jan. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Infestations found on highway shoulder north of Valdosta, GEORGIA; this is the first record for Lowndes County. Appraisal surveys in MISSISSIPPI favorable with very few exceptions. Surveys in LOUISIANA resulted in finding much newly infested acreage; Allen Parish now believed generally infested. Appraisal surveys in Bexar, Colorado and Wharton Counties, TEXAS, show good results. Surveys show eastern half of Montgomery County generally infested. Treatment completed on golf course in Harris County. Minor extensions of known infestations found in Ashley and Union Counties, ARKANSAS; surveys negative in other counties. (PPC, South. Reg., Jan. Rpt.). FLORIDA - Light on east side of Highway 301 in Nassau County 100 feet north of Duval County line. (Josey).

SPRINGTAILS - ALABAMA - Appearing in puddles and on moist soil following late February showers in Lee and Macon Counties. (Barwood).

STICKY BOARD TRAPS - ARIZONA, Yuma (2/22-28) - GREEN PEACH APHID (Myzus persicae) - averaged 0.92 per trap for 12 traps; MELON APHID (Aphis gossypii) - averaged 4.85 per trap for 12 traps. (Ariz. Coop. Sur.).

INTERCEPTIONS

GEORGIA - Light infestations of SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), RICE WEEVIL (Sitophilus oryzae) and CIGARETTE BEETLE (Lasioderma serricorne) found in dry bay leaves and dry ginger roots aboard ship at Savannah, Chatham County. (Vanderford, Feb. 22).

Weather continued from page 140

averaged above normal over the northern Great Plains and below normal over most of the rest of the Nation. Temperatures averaged 9° or more below normal over the central and southern Rocky Mountains and at a few locations scattered along the gulf. Temperatures averaged more than 9° above normal over part of northeastern Montana.

Rainfall exceeded 0.50 inch over the coastal portions of Washington, Oregon, and northern California, from southeastern Texas to Virginia, and in extreme eastern Massachusetts. Elsewhere precipitation was of little importance. Precipitation exceeded 2 inches over southern Louisiana, southern Georgia, southern South Carolina, and northern Florida. Some stations in northern Florida received more than 4 inches of rain during the week. (Summary supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chrysoperla auriplena (gray cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feltia ducens (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																							
Gainesville 2/24			BL	3																3			
GEORGIA																							
Tifton 2/20-26			BL						0	0							0	0					
SOUTH CAROLINA																							
Charleston 2/17-23	28-65	2.35"	BL	1			0	0	0	0	0				0	0	0	0	0	0		0	
Charleston 2/24-3/1	29-62	2.57"	BL	2				1	0	0	0				0	0	0	0	0	0		0	
TEXAS																							
Brownsville 2/20-26			5 BL	34			48	180	1	35			122		32	31			43			1	

* BL = blacklight; I incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

HAWAIIAN INSECTS NOTES

The following notes on Hawaii insect conditions were presented at the 697th meeting of the Hawaiian Entomological Society held January 13, 1964.

A MEALYBUG (Pseudococcus obscurus Essig) was collected on flowers of firebush (Myrica faya Aiton) at Kokee, Lauai, on March 9, 1963. Det. by J. W. Beardsley. (N. L. H. Krauss).

A STINK BUG (Brochymena quadripustulata (Fabr.)) was found to be numerous in storage areas on the farm of M. Kaneshiro at Lualualei, Oahu, by S. Yamamoto in December 1963. This is one year after the first discovery of this stink bug at the same farm. Searches in warmer months have been unsuccessful probably because the species occurs on plants in the field and wasteland during these months. (N. L. H. Krauss).

Outbreaks of a TARO LEAFHOPPER (Tarophagus prosperpina (Kirkaldy)) were observed in Waiahole Valley, Oahu, in November and December 1963 by C. J. Davis and J. Kim; in Waimea Valley, Kauai, in December 1963 by S. Au; and in Waipio Valley, Hawaii, in December 1963 and January 1964 by E. Yoshioka. (N. L. H. Krauss).

A NOCTUID MOTH (Eublemma anachoresis (Wallengren)) - Adults were reared from larvae collected in terminal buds of Waltheria americana L. at Mapulehu, Molokai, during August 1963. This is a new island record for this species. (J. W. Beardsley).

A PARASITIC TACHINA FLY (Trichopoda pennipes (Fabr.)) - A female mantid (Tenodera australasiae Sauss.) was collected at a home in Aina Haina, Honolulu, during December 1963; 2 eggs, apparently T. pennipes, were attached to the head. The mantid was held in the laboratory, but died after 2 weeks in captivity. No parasites emerged from the dead mantid. (J. W. Beardsley).

FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus Shiraki) damaged the insulation of an electrical cable, which resulted in a power failure in the runway lighting system at the Marine Corps Air Station, Kaneohe, Oahu. Investigation showed that termites built a large branch nest in underground manhole nearest point of failure. Mud tubes had been built up to the top of the concrete manhole, as well as along the inside of the cement-asbestos ducts (3-inch diam.) joining manholes and through which the wiring is drawn; manholes are approximately 75 feet apart. Mud tubes extended to the second adjacent manhole, a distance of 150 feet. Only damage noted was about 20 feet from branch nest, where a short circuit had burned out insulation. The ducts were so mud-filled that the use of a truck was necessary to pull out the damaged cable. The nest was carefully dug out, but only thousands of workers and soldiers were observed; no secondary queens were found. A crushed rock drain is located at the bottom of each manhole; it is believed this was the mode of entrance. Nearest brush is approximately 250 feet away and located on the inside of a 150-foot wide taxiway, where a hillside was cut down over 100 feet at time of construction. No sign of wooden form boards could be seen where a colony might start nearby; it is believed the main colony may have started 250 feet away. The first reported damage by this termite in Kaneohe was in 1953. (Clagg).

A MANTID (Orthodera burmeisteri Wood-Mason) - Adults and an ootheca were exhibited. The species was first reported in September 1962 when a single adult was collected in a light trap in Waipio, Oahu, and again in September 1963 when 5 adults were collected from a castor-bean plant in Ewa, Oahu. Det. by A. B. Gurney. (Mabel Chong).

A PARASITIC BRACONID (Mirax sp.) was exhibited and reported to have been recently found established on Oahu. Specimens were reared from Parectopa marginestrigata (Wals.) (a gracilariid) collected on 'ilima in Honolulu in 1961 and 1963. Det. by C. F. W. Muesebeck. (Mabel Chong).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

(continued from page 137)

CEREAL AND FORAGE INSECTS (continued)

ALFALFA, CLOVER, SWEETCLOVER AND VETCH INSECTS

Highlights:

The ALFALFA WEEVIL was the most important pest of alfalfa in 1963, with damage ranging from light to heavy. It was reported from three States for the first time (New Hampshire, Mississippi and Arkansas), and a number of new counties were reported infested in Ohio, Kentucky, Tennessee, Alabama and other States in the eastern part of the Nation. Areas where the weevil appeared to be the most damaging in the East were Pennsylvania, Maryland, Virginia and along the Appalachian Mountains and Piedmont Plateau of the Carolinas, Georgia and Alabama. In the Western States, alfalfa weevil was of major importance and damage was severe in many instances. Oregon, Nevada, Utah, Montana and Wyoming were especially hard hit by the weevil; and commercial damage to alfalfa was reported for the first time in 1963 in Whitman and Asotin Counties, Washington. Resistance to several of the chlorinated hydrocarbon insecticides is being found in some of the States where alfalfa weevil damage has been the greatest. CLOVER LEAF WEEVIL was of more importance in Illinois than the previous year, and CLOVER HEAD WEEVIL was heavy on crimson clover in Arkansas and Alabama. PEA LEAF WEEVIL was more numerous than usual on alfalfa in northwestern Washington, and BLACK BLISTER BEETLE became a problem in Illinois. Damage by PEA APHID was not as prevalent as usual, although Minnesota reported heavier than usual numbers and populations in Wyoming were markedly above those found in 1962. SPOTTED ALFALFA APHID was at the lowest level in Nevada since 1957, and only an occasional flareup occurred in California. The aphid was heavy during the fall in Oklahoma and Kansas, with populations in the latter State generally at the highest level in several years. Spotted alfalfa aphid was found in Nebraska, South Dakota, Wisconsin, Illinois and Indiana in 1963, but no appreciable damage resulted. In Virginia, spotted alfalfa aphid caused severe damage to fall-seeded alfalfa in October and November. This was the first year such damage has been inflicted in Virginia since 1959. Infestations were also more severe during the late summer and fall in Georgia than in recent years. POTATO LEAFHOPPER caused some yellowing of alfalfa in Wisconsin, Vermont, New York, New Jersey and Maryland; and THREE-CORNERED ALFALFA HOPPER caused severe girdling of alfalfa in Arizona. Various species of PLANT BUGS were active on alfalfa as usual, and in some instances, controls were justified. The problem of resistance made control difficult in some areas of California. ALFALFA CATERPILLAR was unusually abundant in New Mexico and Arizona, and many fields of alfalfa were damaged. High populations occurred during August and September in Minnesota and northeastern Nebraska. Damaging numbers of FALL ARMYWORM, CORN EARWORM, ARMY CUTWORM and BEET ARMYWORM were reported locally on alfalfa in several Western States; and GARDEN WEBWORM caused light to very heavy damage to alfalfa in eastern Nebraska. SPIDER MITES caused rather extensive damage to red clover in Virginia, Maryland and Delaware; and TWO-SPOTTED SPIDER MITE was rather serious on clover in central Washington.

ALFALFA WEEVIL (Hypera postica) was collected for the first time in NEW HAMPSHIRE on May 21, 1963, in Rockingham County. Specimens were later collected in Merrimack, Cheshire and Strafford Counties. Alfalfa weevil was more numerous in VERMONT than in 1962, but no apparent damage yet. It is present in Windham County (West River and Connecticut River Valleys) and in Bennington County. In MASSACHUSETTS, alfalfa weevil caused extensive damage in some untreated alfalfa fields in 1963. Adults and first and second-stage larvae were observed on May 1.

The first pupa was recorded on May 31. Newly emerged adults were observed on June 13. The high count, 2,440 individuals per 100 sweeps, was found on June 5 in Berkshire County. (See CEIR 13(37):1095-1096). Of particular note is the great increase of the alfalfa weevil in Massachusetts. In 1961, this weevil represented only 1.4 percent of all insects on forage crops; in 1962, it comprised 1.8 percent; in 1963, it rose to 38 percent. Larvae of alfalfa weevil were reported a problem in New Haven County, CONNECTICUT, in June. In NEW YORK, the southeast, which includes the lower Hudson River Valley, is the area most heavily infested by the alfalfa weevil. In this area (Dutchess County), the weevil was first found in late April and larvae reached a peak of approximately 1,900 per 25 sweeps in early June. By mid-June, most pupation had taken place. Along with wet conditions of July, populations fell to very low levels of 2-20 per 25 sweeps, remaining at that level until late September when the populations increased again. Commercial damage by alfalfa weevil in New York was most noticeable in Dutchess, Ulster, Orange and Columbia Counties. Other agricultural areas of the State experienced relatively little losses from the weevil. The weevil again caused heavy losses to alfalfa in PENNSYLANVIA. Rainy weather prolonged the first cutting for several weeks during which time the weevil continued to increase and feed, even defoliating fields that had been treated in the spring. Alfalfa weevil has now been reported from all Pennsylvania counties.

Larvae of alfalfa weevil were again about normal in MARYLAND, causing from moderate to heavy damage to first-growth alfalfa in all sections. Conspicuous damage also occurred on second-growth alfalfa in all sections of that State. In early August, there was a noticeable buildup of larvae, up to 10 per sweep, in some central Maryland fields. Survey for alfalfa weevil is difficult in NEW JERSEY since most alfalfa is treated with insecticides. In untreated check plots of demonstration tests in the southern area, larvae reached a peak of 80-100 per sweep during the week of May 9-16. In the untreated portion of a field in central New Jersey, larval populations never exceeded 15-20 per sweep. In DELAWARE, first-stage larvae were first noted feeding on alfalfa in New Castle County on March 26. Larval populations on first-growth alfalfa appeared highest throughout Delaware during the week of May 13. The highest spring-laid egg counts in old alfalfa stems of 4.79 eggs per stem were approximately equal to 1962's highest estimate and occurred at about the same time; April 22. Larval feeding injury to first-growth alfalfa was moderate in most untreated Delaware fields and rather light to second-growth fields during the last half of June. In RHODE ISLAND, eggs were difficult to find in the Kingston area of Washington County in late May. Counts of 5 larvae per sweep were recorded in mid-June. Populations of alfalfa weevil were generally very low in Rhode Island, even in untreated fields.

Alfalfa weevil larvae caused considerable concern throughout VIRGINIA in 1963, especially on the first and second cuttings of alfalfa. Extensive damage occurred on first-cutting alfalfa in untreated fields and in most treated fields in the southern part of the west and east central areas and, in some instances, in the northern and northeast sections of the State. Alfalfa weevil has apparently developed resistance to fall applications of some chlorinated hydrocarbon insecticides in some areas of NORTH CAROLINA. Only one-half to two-thirds of normal control was obtained in the central and northeastern Piedmont. All stages of the weevil were present in the Piedmont during the summer months and light damage to alfalfa occurred all during the summer. Damage by alfalfa weevil was found in all SOUTH CAROLINA fields of alfalfa that were not protected. Most fields to which granular insecticides had been applied the previous fall were satisfactorily protected. Alfalfa weevil continues to be the number one insect problem of alfalfa in GEORGIA. However, this past spring the first larvae were observed later than usual, being observed about March 1. Infestations were light to heavy on fields which were not treated in the fall of 1962. Treated fields, with the exception of two or three, showed little feeding damage. Alfalfa weevils spread into every county of TENNESSEE during 1963. In the fall of 1963, farmers treated 100,000 acres of alfalfa out of a possible 180,000 acres. This will mean a saving of $3,000,000 worth of hay in the spring of 1964.

based on a one-ton yield valued at $30.00 per ton. Alfalfa weevil has become widespread in ALABAMA. Damage in 1960-61 and 1962 caused a considerable reduction in acres in most counties. Damage to the remaining acres was heavy in 1963 except where good controls had been adopted. Alfalfa weevil was reported for the first time in MISSISSIPPI during 1963. It probably had been present in the State for two or three years prior to this report. The damage by this pest and related species was extensive during 1963 in northeast Mississippi and was most apparent on alfalfa and crimson clover. Alfalfa weevil was found in ARKANSAS for the first time in 1963. The first specimen was taken in Mississippi County on May 6. As of the end of 1963, the weevil had been found in four counties, all on the eastern border. Six adults per 100 sweeps was the highest infestation found in the State.

Alfalfa weevil was found in 10 additional OHIO counties in 1963. The counties were Coshocton, Licking, Ross, Perry, Fairfield, Pickaway, Fayette, Highland, Pike and Adams, making a total of 30 counties known to be infested. Severe damage occurred in 6 counties adjacent to the Ohio River. Eggs hatched over a long period of time and larvae were present in numbers until mid-June. Thus, damage occurred on both first and second cuttings of alfalfa in Ohio. A special survey in southern ILLINOIS did not reveal any larvae, adults or damage by this weevil.

Alfalfa weevil was found damaging to alfalfa in Whitman and Asotin Counties, WASHINGTON, during 1963. This is the first commercial damage to be reported in the State. In OREGON, moderate to severe damage to alfalfa occurred in eastern and southern counties. Infestations were found for the first time in the Summer Lake Refuge area of Lake County. A few adults were found the second week of April in Clearwater River area of IDAHO. Considerable injury was recorded in Bannock County, southeast, but populations appeared light in Canyon County, southwest, in mid-May. Adult activity and egg laying began early in March in all areas of NEVADA except the most northern and southern ones which were later and earlier, respectively. Larval development in Nevada was generally normal, with peak populations occurring in the latter part of June. In some areas, larval development was prolonged and in most areas adults were present in unusually high numbers throughout much of the growing season. Pahranagat Valley, Lincoln County, infestations and damage were heavy for the second consecutive year. In areas of Churchill, Douglas, Lyon, Pershing and Washoe Counties, recommended chemicals for adult control failed to give satisfactory results. In UTAH, control failures, due to resistance of the adults to specific chlorinated hydrocarbon insecticides, occurred again for the third season in the Smithfield-Richmond area of Cache County and in some Box Elder, Sanpete and other areas, even more extensively than in 1962. Over most of Utah, early spring treatments with these materials continued to give control. Damage to second-crop alfalfa was more common than formerly. Alfalfa weevil was again the most damaging crop pest in WYOMING. Adults resistant to certain chlorinated hydrocarbon insecticides have been found in Big Horn County. These weevils are 60 times more resistant to certain insecticides than susceptible strains. Infestations were more severe in Wyoming than in 1962. In a three-county area of MONTANA (Yellowstone, Carbon and Stillwater), alfalfa weevil, which has been effectively controlled for some 14 years, is now resistant to two recommended chlorinated hydrocarbon insecticides. The weevil is spreading into areas where it was not previously present in Montana. Lake and Ravalli Counties have increased populations. Gallatin County is now almost completely infested.

Alfalfa weevil caused noticeable damage to alfalfa during the summer in Sandoval County, NEW MEXICO. Adults and larvae were generally difficult to find. Heavier infestations were found in the Farmington-Aztec area of San Juan County and the Chama area of Rio Arriba County. Alfalfa weevil damaged alfalfa 1-12 percent in some areas of COLORADO, with the highest loss occurring in Weld County where controls were not effective when applied as an early spring treatment and there were failures when controls were applied after the first cutting was removed. Only trace numbers were found in KANSAS. Infestations in some areas of the

panhandle of NEBRASKA ranged from zero to six larvae per 10 sweeps in some cases during May. Second-growth alfalfa in a field in Sioux County was destroyed in July. Adjacent fields had areas 30 to 40 feet around hay stacks severely damaged. In SOUTH DAKOTA, first to fourth-stage larvae of alfalfa weevil were collected in the west central region of the State during the spring survey. Populations at this time were generally at a noneconomic level, but extreme infestations of up to 700 larvae per 100 sweeps did exist.

CLOVER LEAF WEEVIL (Hypera punctata) caused more damage to clover in ILLINOIS than in 1962. An estimated 20,934 acres were treated. The highest population recorded in any field was 64 per square foot. Moderate numbers of larvae caused some damage to alfalfa and clover in eastern NEBRASKA in early April, but the insect was not important in UTAH and only trace numbers were recorded in KANSAS. It caused little damage in OKLAHOMA and only observed on alfalfa and clover in MISSOURI. Larvae were prevalent in alfalfa and clover fields in all sections of MARYLAND and caused noticeable but not economic damage.

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) adult populations varied 0-60 (averaged 12) per 100 sweeps from April 29 to May 2 in ILLINOIS, and one red clover field had 90 percent of the stems infested by larvae. By May 20-23, adults in the east-southeast district of Illinois varied 0-80 (averaged 15) per 100 sweeps and in the southeast district 0-140 (averaged 28) per 100 sweeps. Many of the overwintering adults had disappeared by this time and new adults were emerging. From 70 to 100 (average 90) percent of the red clover stems examined in the east-southeast district showed signs of larval feeding and 100 percent of the stems examined in southeast Illinois showed larval feeding. An examination of 10 stems chosen at random from each of 3 randomly selected fields showed that 95.4 percent of the buds were killed and the remaining buds or stems were so badly damaged that they would never produce a good head. In MARYLAND, larvae of lesser clover leaf weevil again caused noticeable injury to the axils and buds of the first growth of red clover in most sections. Light to heavy infestations were noted on crimson clover in the Piedmont area of GEORGIA, and the pest caused some damage to crimson clover in ALABAMA. Also in the latter State, lesser clover leaf weevil was the predominant pest of white clover. This crop is grown in Alabama as a grazing crop in mixtures. It was not attacked by clover head weevil (Hypera meles). In NEBRASKA, adults of lesser clover leaf weevil averaged 2 per 10 sweeps in the central and eastern areas on legumes in mid-April.

CLOVER HEAD WEEVIL (Hypera meles) was heavy on crimson clover in ARKANSAS, up to 150 per 100 sweeps in the southwest area in mid-April. This weevil is the major pest of crimson clover in ALABAMA. However, the pest was not as serious in 1963 as in the three preceding years. Unspecified CLOVER WEEVILS were unusually abundant during mid-April in SOUTH CAROLINA. They are a pest of the first magnitude in that State in the production of crimson clover seed.

SWEETCLOVER WEEVIL (Sitona cylindricollis) populations increased generally throughout MINNESOTA. In the Red River Valley, counts after a lull of a few years, increased sharply in some fields. Populations in NORTH DAKOTA were present on sweetclover early in the season, but relatively little feeding was observed. In SOUTH DAKOTA, this weevil was reported as an economic pest only once when a farmer mowed his sweetclover reserve acres. The weevils then migrated into an adjoining field of alfalfa which resulted in an estimated 10 percent loss of the forage crop. Populations in NEBRASKA remained 2-15 per 10 sweeps in eastern areas from April through November. Light to moderate damage occurred in the spring in northern and northeastern areas of the State. Sweetclover weevil was approximately normal in number and/or injury in UTAH.

A LEGUME CURCULIO (Sitona scissifrons) was very destructive to breeder plantings of alfalfa at the Fairbanks Experiment Station in ALASKA in June. Populations of S. scissifrons were present on alfalfa early in the season in NORTH DAKOTA, but relatively little feeding was observed.

PEA LEAF WEEVIL (Sitona lineata) was more numerous than usual on alfalfa in the northwestern part of WASHINGTON, but damage to legumes in the Willamette Valley of OREGON was about the same as in 1962. However, pea leaf weevil was found feeding on clover in Jackson County, Oregon, which is a 175-mile southern extension of its infestation range. CLOVER ROOT CURCULIO (Sitona hispidula) was observed on clover and alfalfa in MISSOURI, trace numbers were found in KANSAS, and was about normal for the year in UTAH.

First adults of CLOVER SEED WEEVIL (Miccotrogus picirostris) were swept from roadside white clover in Whitman County, WASHINGTON, in late May. The buildup in seed fields was delayed a week beyond development of brown blooms; therefore, there were subsequent control timing problems in the southeastern part of Washington.

VETCH BRUCHID (Bruchus brachialis) was found for the first time in Williamson and Brown Counties, ILLINOIS, during 1963. In TEXAS, it caused its usual amount of damage to seed vetch in the State.

PALE-STRIPED FLEA BEETLE (Systena blanda) caused trace amounts of loss to alfalfa in scattered localities of COLORADO; and a SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) adults were relatively abundant in alfalfa in Dona Ana, Sierra, Valencia, Bernalillo and Sandoval Counties, NEW MEXICO. BEAN LEAF BEETLE (Cerotoma trifurcata) was present on lespedeza in ALABAMA, but it is not considered a damaging pest.

Various species of BLISTER BEETLES were observed on clover and alfalfa in MISSOURI during 1963. ASH-GRAY BLISTER BEETLE (Epicauta fabricii) was first observed on alfalfa in ILLINOIS in the west-southwest district the week of May 13-16, and by early June, it averaged 12.5 per 100 sweeps in clover and alfalfa in the central district of that State. By the middle of July, MARGINED BLISTER BEETLE (E. pestifera) and a STRIPED BLISTER BEETLE (Epicauta sp.) were common in clover and alfalfa throughout the northern half of Illinois. By late August, blister beetles, now predominantly BLACK BLISTER BEETLE (E. pennsylvanica), were abundant in most areas of Illinois. There were reports from the northwest, central and southwest districts of the State of cattle refusing to eat "greenchop", apparently due to the presence of crushed blister beetles. Four or five beetles per sweep were common, with 20 or more reported in some sweeps. In WISCONSIN, adults of black blister beetle began appearing about July 24 and became abundant in many alfalfa fields in the southern area; counts ranged as high as 18 per sweep. A rapid decline in numbers occurred in mid-October. Ash-gray blister beetle and black blister beetle were moderately abundant on alfalfa in southern NORTH DAKOTA; and Epicauta sp. caused minor damage to alfalfa foliage in Bernalillo and Valencia Counties, NEW MEXICO.

PEA APHID (Acyrthosiphon pisum) populations were moderately abundant on forage crops early in the spring in the Finger Lakes area of NEW YORK, reaching maximum levels of about 100 per sweep. As per usual, these early levels dropped to 20 per sweep in August. Populations of the aphid were generally low in NEW JERSEY throughout 1963. In scattered fields of alfalfa in the southern area, the population built up to economic levels during late May, but control was achieved through a combination of timely cutting plus an increase in the numbers of lady beetles and syrphids. Pea aphid was quite abundant early in PENNSYLVANIA, but was rapidly reduced by parasites/predators. It was light in alfalfa-clover-timothy mixtures in RHODE ISLAND in May, and built up somewhat in June but did not cause serious damage. Pea aphid was first noted in DELAWARE alfalfa on April 8 in New Castle County, but no significant increase occurred until early May. Very high populations occurred on alfalfa only in a few isolated fields in the State. Spring populations were about normal in MARYLAND, but somewhat more variable than usual with damage ranging from light to heavy. During August and September, heavy numbers of from 100 to 500 per sweep were collected from alfalfa in Baltimore, Frederick and Worcester Counties. Pea aphid was present on alfalfa throughout VIRGINIA during the spring, but it caused little damage.

Pea aphid populations were at their usual relatively low levels during the spring and summer in OHIO, but they increased tremendously in October. Counts in INDIANA ranged from 25 to over 200 per sweep on alfalfa in several counties about mid-May. In ILLINOIS, populations were generally low throughout the year. Some fields of alfalfa in the southern area had as many as 550 per sweep in late April and early May, but soil moisture was generally good and little damage was evident. Heavy rains and hay harvest eliminated the threat with few treatments necessary. Populations later built up to 300-400 per sweep in some areas of Illinois, but little damage was done. An estimated 13,925 acres were treated in that State in 1963. Eggs of pea aphid hatched in WISCONSIN by April 8. The first winged form appeared in that State in mid-May. Populations remained at about 30-60 per sweep in most Wisconsin alfalfa and showed an upward trend in the fall. Populations fluctuated considerably according to the area and stage of crop. In MINNESOTA, pea aphid populations were extremely high in alfalfa by the end of May and remained so until early August. Predator populations were high also, but they were unable to reduce aphid numbers. Pea aphid is not considered an economic insect on alfalfa normally in Minnesota. During a six-week drought in the eastern area, some fields showed aphid feeding damage. Populations reached very high numbers on alfalfa in southeast NORTH DAKOTA, but alfalfa was relatively free of pea aphid in SOUTH DAKOTA except for an occasional heavy infestation at various times throughout the season. In NEBRASKA, populations fluctuated from 4 up to 600 per 10 sweeps on legumes, but no damage was reported.

High pea aphid populations (15-300 plus per sweep) damaged alfalfa and clover throughout southwest MISSOURI during the latter part of April. Except for this two or three-week period in the southwest, pea aphid was not an economic problem in Missouri during the year. Pea aphid became heavy in ARKANSAS during the spring season, with some alfalfa being treated. The pest was very light in the fall. In KANSAS, pea aphid was locally heavy in areas in the eastern one-half of the State in the spring. Droughty conditions compounded the effect. Disease and parasites reduced populations to noneconomic levels in Kansas by mid-May. Pea aphid was present on overwintering alfalfa in OKLAHOMA, but counts remained low throughout January and February. By late March, populations increased until damaging numbers requiring control measures were present during April and early May. Light, noneconomic populations generally existed for the remainder of the season in Oklahoma. Pea aphid and COWPEA APHID (*Aphis craccivora*) attacked legumes generally in TEXAS, and were particularly heavy in Brazos County.

Pea aphid was generally light on alfalfa in NEW MEXICO during the spring and fall, but occasional heavy infestations required treatements in the Pecos and Mesilla Valleys. The aphid caused one percent loss to alfalfa in western COLORADO and in Larimer and Weld Counties, same State. Hymenopterous parasites kept pea aphid populations reduced to a moderate level most of the season in Colorado. However, pea aphid populations in WYOMING were markedly above those found in 1962. The heaviest infestations in alfalfa were found in Goshen, Park, Big Horn and Fremont Counties. The greatest populations were found in late August. Pea aphid was another pest of alfalfa in MONTANA in the late summer over most of the State. Populations in Lewis and Nez Perce Counties, IDAHO, became rather high in late July, with alfalfa stands in the Lewiston area being retarded. However, the pest was extremely low on alfalfa throughout southern Idaho at this time in marked contrast to populations encountered during the past several years. Alates appeared on alfalfa in northwestern WASHINGTON by late April and apterae were present in the eastern area by May. The aphid increased rapidly on alfalfa raised for seed in central Washington during June but it was less severe than for the past three years. In OREGON, unusually low populations of pea aphid were present during 1963, and no reports of economic damage to alfalfa were received from any area of the State. Pea aphid was generally light on alfalfa in Fresno, Los Angeles and Siskiyou Counties, CALIFORNIA. Populations in NEVADA were generally lower than in 1962 except in alfalfa seed fields in Humboldt County where they were normal and in Fish Lake Valley, Esmeralda County, where populations and damage were severe in late July. Pea aphid was approximately normal in numbers on alfalfa in UTAH during 1963.

A few SPOTTED ALFALFA APHID (Therioaphis maculata) alates were found in vacuum net collections on alfalfa in the lower Yakima Valley of WASHINGTON on August 13. There was apparently a limited migration into this area, but the pest failed to develop into large enough populations to be detected in limited surveys or to cause damage. Spotted alfalfa aphid continued to be of no economic importance in OREGON in 1963. An occasional specimen could be found in Jackson County. In CALIFORNIA, only an occasional flareup of this aphid occurred in local areas. It was generally light in Imperial, Orange, Merced, Los Angeles, Butte and Riverside Counties. Populations and damage were below normal in southern NEVADA, and no infestations were reported in the central and northern parts of the State except for one small, localized infestation in experimental plots in southern Washoe County. The population level in Nevada was the lowest since 1957. Spotted alfalfa aphid was below average in numbers or importance during 1963 in UTAH, and populations were much lighter on alfalfa in NEW MEXICO in 1963 with the exception of scattered fields where populations built up and chemical treatment was necessary.

Spotted alfalfa aphid occurred generally in TEXAS, but it did not cause significant damage. A complex of spotted alfalfa aphid, pea aphid and cowpea aphid heavily damaged alfalfa in Bossier Parish, LOUISIANA, in March. Spotted alfalfa aphid was dominant and probably caused most of the damage. In OKLAHOMA, heavy populations of spotted alfalfa aphid were present in overwintering alfalfa in the northwest in early January, but cold weather reduced populations which remained low until mid-April when heavy populations required controls. Moderate infestations continued in Oklahoma until early May when populations declined and remained light until late June when populations again increased in the southwest. Counts were down during July and August and increased to damaging proportions again in early September and continued high, especially on seedling alfalfa, throughout the fall until early December. Spotted alfalfa aphid first appeared in KANSAS in the southern area in mid-May and in the extreme northern counties about the same time. Those in the northern areas were assumed to be originating from overwintering eggs laid in the fall of 1962. Sexual forms were found in the fall of 1963 in Decatur. Phillips, Smith and Jewell Counties, Kansas. Populations in the fall of 1963 were generally at the highest level noted for several years and insecticides were applied in several locations. An unidentified fungus disease reduced numbers in many cases. Lower populations and reduced damage were noted on resistant varieties. The aphid did not cause a problem statewide in COLORADO, but losses to alfalfa did occur in the Arkansas Valley on fall-planted alfalfa and there was some damage to spring-planted alfalfa during September in Weld County.

First to fourth-stage nymphs of spotted alfalfa aphid were found in Howard County, NEBRASKA, April 12. Populations increased to about 10 per 10 sweeps in early May and remained at or below this level in most areas of Nebraska through September. In spite of hot, dry conditions in mid-summer, populations did not build up. Highest counts of 500 per 10 sweeps were in Boyd County in late October. Sexual forms again were readily found in most areas of the State in late November. In SOUTH DAKOTA, the first collection was made on May 14 in Bon Homme and Charles Mix Counties. This collection was two weeks later than the first 1962 collection date. June populations ranged from 4 to 320 aphids per 100 sweeps in the southeast and central regions of South Dakota. The extreme western collections were in Jones, Mellette and Todd Counties in the south central area. Sexuals were being collected in Yankton, Charles Mix and Hutchinson Counties by the first of November.

Spotted alfalfa aphid caused some damage to alfalfa in WISCONSIN, although the extent could not be accurately determined since the highest numbers were present in sparse alfalfa fields where growth was inhibited naturally by drought. Some honeydew was present and leaf drop prevalent in heavily infested fields. Distribution surveys in Wisconsin were questionable, significant populations apparently being present in the Sugar River area and in the area adjacent to the Wisconsin River in Dane, Iowa, Sauk and Richland Counties. The aphid was first discovered

in 1963 near Brodhead in Green County on August 6. The population built up to as high as 1,500 per sweep in mid-October before it decreased. Considerable egg laying occurred in the area where the highest populations prevailed. In ILLINOIS, spotted alfalfa aphid was found in Mason County, central area, on April 17. The infestation remained localized and populations were very low throughout the season. Another infestation was found in a small, rather isolated, alfalfa-growing area along the Ohio River in Hardin and Pope Counties in October. Populations varied 6-440, averaged 176, per sweep. Some of the alfalfa was sticky with honeydew, showed slight discoloration and leaf curling and appeared to be stunted. Spotted alfalfa aphid was found in only one field (Floyd County) of those examined in southern INDIANA counties in May. It was not found in the field infested during fall of 1962 in Harrison County, same area. Surveys in 10 other southern counties were negative. Low populations were present in southwest MISSOURI during the late summer and early fall. These populations increased until most unprotected fall seedings in the southwest area of Missouri were damaged by this insect. Infestations in ARKANSAS were heavier than normal, possibly due to dry weather. Medium infestations occurred in the southwest part of Arkansas during the spring. Extremely heavy infestations occurred in the northern part of the State in the fall.

Spotted alfalfa aphid caused severe damage to fall-seeded alfalfa in several VIRGINIA counties in October and November. This was the first year such damage has been inflicted in Virginia since 1959. In GEORGIA, infestations were more severe in late summer and fall than in recent years. The growing season in late summer and fall was very dry in Georgia.

SWEETCLOVER APHID (Therioaphis riehmi) was about normal for the year in UTAH, and light on sweetclover in southeastern NEBRASKA.

MEADOW SPITTLEBUG (Philaenus spumarius) populations were relatively low throughout the season in ILLINOIS. The fall survey showed an increase in the State average from 0.20 adult per sweep in 1962 to 0.43 in 1963. The entire State rates noneconomic except for 6 counties in the northwest district which rates moderate. An estimated 19,467 acres were treated to control this insect in Illinois in 1963. Of these acres, 17,080 were in districts which had low populations and the treatments were probably not profitable from the economic standpoint. In MICHIGAN, nymphs and spittle masses appeared to be more numerous in southern areas than during other recent years. The first adults were reported from Montcalm County on June 8. Populations of meadow spittlebug continued at a low level in OHIO except in several areas in the central part of the State. Fall survey results indicate slight increases in populations are to be expected in 1964. Populations of meadow spittlebug were higher than the very low levels found in 1962 in NEW YORK, averaging about 25 spittle masses per square foot in birdsfoot trefoil fields. Meadow spittlebug was not abundant generally in PENNSYLVANIA, but in certain areas and in some fields heavy infestations occurred. Populations generally ranged from light to moderate on alfalfa and red clover in MARYLAND, except in western sections where many red clover fields were heavily infested during the late spring. In DELAWARE, nymphs were first noted on alfalfa in New Castle County on May 7, with the first adults of the season present during the second week of June in New Castle and Kent Counties. Adults averaged between 50 and 60 per 100 sweeps in many fields in New Castle County during late June and July. Meadow spittlebug was not a problem on alfalfa in NEW JERSEY during 1963, and no reports of damage were received.

POTATO LEAFHOPPER (Empoasca fabae) caused noticeable yellowing in many WISCONSIN alfalfa fields, although this condition was more apparent on higher land and marginal areas of fields. Noticeable numbers appeared by mid-May, and nymphs became common by mid-June. In NEBRASKA, light, scattered populations were commonly found in most areas causing some yellowing of alfalfa. The first specimen of the season in ILLINOIS was taken in a windsock at Urbana on April 21. From zero to 40, average 21, adults per 100 sweeps were found in alfalfa in the central, west, west-southwest and southwest districts of Illinois April 23-24.

The main flight apparently entered the State on heavy winds May 8. The following week, May 13-16, populations varied from zero to 3,400 per 100 sweeps. Populations dropped to very low numbers, 0-180 per 100 sweeps, in late May and early June, then gradually built up to populations of 50-400 adults and 0-4,500 nymphs per 100 sweeps in the west-southwest district in early July, and 200-8,000 adults and 200-3,000 nymphs per 100 sweeps in the north July 15-18. Although some yellowing of alfalfa was noted throughout Illinois, only a small part of it could be attributed to potato leafhopper. Some infestations were reported on clover and alfalfa in MISSOURI during 1963.

Potato leafhopper caused severe yellowing and stunting of alfalfa in Addison and Chittenden Counties, VERMONT. In NEW YORK, potato leafhopper was heaviest on alfalfa in the southeastern part of the State, but the insect did not build up in July due to the wet conditions. In the central New York counties of Tompkins, Seneca, Onondaga, Ontario and Wayne, counts were 0-12 per 25 sweeps and little "yellows" was evident except in droughty areas. Several fields of alfalfa in Burlington County, NEW JERSEY, required treatment, and damaged fields were observed in Gloucester, Camden and Cumberland Counties, same State. Potato leafhopper was above normal in MARYLAND and caused characteristic yellowing of alfalfa in many fields over the State. Light to moderate numbers were also present on clover in all sections during the summer.

Light populations of a LEAFHOPPER (*Erythroneura* sp.) occurred on alfalfa in Fresno County, CALIFORNIA, and in a few other locations in northern California. COTTON FLEAHOPPER (*Psallus seriatus*) was present in Guadalupe County, TEXAS, vetch fields.

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) infestations in ARIZONA were heavy from July through October. Severe girdling was evident on alfalfa and counts of 1,000 per 100 sweeps were common. Infestations occurred in late July and September in the Brazos-Burleson County area of TEXAS and considerable stem girdling was noted. Populations in OKLAHOMA were present from late August through early December. The insect was about normal in number and/or injury during 1963 in UTAH.

LYGUS BUGS (*Lygus* spp.) occurred in moderate to heavy numbers on alfalfa in Guadalupe, Hays, Terry and Gaines Counties, TEXAS. They were first noted on alfalfa in OKLAHOMA in late March. By mid-April, infestations were common in most Oklahoma alfalfa, with populations increasing to heavy numbers in various areas by early May. Counts declined during June and July and increased again from August to October. Seed alfalfa production in COLORADO was reduced somewhat by lygus bugs in Delta, Garfield, Mesa and Montrose Counties. Populations in alfalfa seed fields in Mesilla and Pecos Valleys of NEW MEXICO built up to point where most growers were required to treat. The heaviest infestations in ARIZONA occurred between June and October although populations could be found through the year. Lygus bugs were numerous and damaging to many crops in CALIFORNIA and required considerable control. The problem of resistance made control difficult in some areas. Alfalfa, clover and safflower were the cereal and forage crops most affected. Populations were normal in NEVADA and UTAH, although seasonal increases began about two weeks later than usual in the former State. In WYOMING, slight damage to alfalfa seed crops was found throughout the State. Infestations were about equal to those found in 1962. The highest numbers were found during July. *L. hesperus* and *L. elisus* increased rapidly on alfalfa grown for seed in eastern WASHINGTON by mid-June.

GARDEN FLEAHOPPER (*Halticus bracteatus*) was extremely numerous on kudzu during the year in SOUTH CAROLINA.

TARNISHED PLANT BUG(*Lygus lineolaris*) was again very abundant in alfalfa and clover in MARYLAND, especially those fields near maturity in all sections. In DELAWARE, the first overwintered adults were noted on alfalfa in late March and the first eggs of the season were found April 22 in new alfalfa growth. Counts

on alfalfa and soybeans averaged between 20 and 30 adults per 100 sweeps throughout most of the season except in late August when populations on those crops increased to an average of 60 adults per 100 sweeps. Tarnished plant bug caused some damage to alfalfa and trefoil in VERMONT, and counts of 1-2 per sweep were found on alfalfa in the Finger Lakes area of NEW YORK in August. In NORTH DAKOTA, the species was relatively numerous on alfalfa and sweetclover in the eastern area, and adults and nymphs ranged 4-20 per 10 sweeps throughout NEBRASKA on legumes.

ALFALFA PLANT BUG (Adelphocoris lineolatus) was reported in one of the alfalfa seed producing areas of Powder River County, MONTANA, and was relatively numerous on alfalfa and sweetclover in eastern NORTH DAKOTA. Counts in NEBRASKA were low, 5-50 per 10 sweeps, with no economic damage reported. Populations in WYOMING were about the same as in 1962, with the greatest numbers being found in Sheridan, Johnson, Fremont, Platte and Goshen Counties. RAPID PLANT BUG (A. rapidus) was again very abundant in alfalfa and clover fields in MARYLAND, especially those near maturity in all sections, and it attacked crimson clover in ALABAMA in association with other plant bugs including tarnished plant bug. Populations of rapid plant bug in NEBRASKA were approximately 5 to 20 per 10 sweeps in most areas of the State where the species occurs, with no economic damage reported. SUPERB PLANT BUG (A. superbus) was about normal for the year in UTAH.

STINK BUGS were more prevalent during 1963 in CALIFORNIA than formerly. Alfalfa was the principal crop affected.

ALFALFA CATERPILLAR (Colias eurytheme) was unusually abundant on alfalfa throughout most of NEW MEXICO, with the heaviest infestations being found in northern Eddy County where many growers had to treat. All alfalfa-producing areas of ARIZONA were heavily populated by flights of adults, but larval damage was not as serious as expected although many individual fields were heavily damaged. In CALIFORNIA, light to medium, spotted infestations occurred over the State in alfalfa plantings. Populations in NEVADA were low as usual except in the Virgin Valley of Clark County where severe damage resulted in the loss of approximately one cutting in September and early October. Alfalfa caterpillar was about normal for the year in UTAH, and the pest caused trace amounts of loss to alfalfa in scattered areas of COLORADO. Small to moderate infestations were found throughout WYOMING on alfalfa. Damage was very slight and no control efforts were used. The highest populations were found in Goshen, Platte, Laramie, Fremont and Big Horn Counties. Populations were generally smaller than in 1962 in Wyoming. Adult and larval activity was found in central and eastern NEBRASKA in mid-April. Unusually high adult numbers were present in legumes and roadsides in the northeast area of Nebraska in August and September. It was present throughout the summer on alfalfa in MINNESOTA, but increased sharply in August. High populations occurred during August and September; the highest in many years. Vigorously growing alfalfa at that time showed little injury. In WISCONSIN, larvae became noticeable in alfalfa in the southwest about mid-July and ranged upward to 3-6 per sweep as late as the first week of November. Light numbers became active in OKLAHOMA in late April and continued light until mid-September. Localized, heavy populations were present during late September and early October in that State. Alfalfa caterpillar was observed on alfalfa in MISSOURI; fairly common on alfalfa in New Castle County, DELAWARE; light to moderate during the season on alfalfa in all sections of MARYLAND; and present on alfalfa in ALABAMA.

ALFALFA LOOPER (Autographa californica) was evident on alfalfa plantings in a few CALIFORNIA locations; and light infestations were found on alfalfa near Artesia, Eddy County, NEW MEXICO. Populations of this insect in WYOMING were much lower than in 1962. Very little damage to alfalfa was noted, and very few, if any, controls were applied to alfalfa fields in the State.

GREEN CLOVERWORM (Plathypena scabra) larvae were rather common on alfalfa throughout DELAWARE by mid-June. Larval populations generally increased on alfalfa

during late August, with counts averaging between 30 and 50 per 100 sweeps. Numbers on alfalfa in MARYLAND were about normal, ranging from light to moderate in all sections during the summer. Green cloverworm was observed on clover and alfalfa in MISSOURI and was not of economic importance on alfalfa in KANSAS. Light populations were active from early April to mid-September in OKLAHOMA when populations increased to 150-200 per 10 sweeps in the north central area. Moderate counts continued until late October with only localized damage noted. It caused light to moderate damage to alfalfa throughout TEXAS, and was present on crimson clover and lespedeza in ALABAMA.

FALL ARMYWORM (Laphygma frugiperda) infestations were heavy on alfalfa in ARIZONA during August and September, and infestations of this species and CORN EARWORM (Heliothis zea) damaged forage crops severely in southern Nevada. Corn earworm activity started on alfalfa in OKLAHOMA in late April and by mid-May infestations were common on that crop in all southern sections of the State. Infestations of corn earworm continued to increase until heavy populations were damaging alfalfa and other crops during late June. Populations decreased somewhat during July and early August in Oklahoma, but reached a second peak of activity during late August. Heavy infestations were again present in alfalfa in the north central and northwest parts of Oklahoma during late September and activity continued into early November. Corn earworm also damaged alfalfa and vetch in north central and central TEXAS during 1963.

ARMY CUTWORM (Chorizagrotis auxiliaris) severely damaged several NEVADA alfalfa fields; in Churchill County in March and Humboldt County in May. Moderate infestations of this pest were found in WYOMING in late April and early May. Most noticeable damage occurred to alfalfa. The largest populations were found in Park, Fremont, Albany, Goshen and Laramie Counties. In general, populations were smaller than the previous year in Wyoming. In NEBRASKA, damaging numbers were found on alfalfa in the southwestern area in April. Heavy moth flights occurred in late May. Little damage was observed on alfalfa in western KANSAS although the pest was abundant in wheat. Army cutworms caused trace amounts of loss to alfalfa in scattered locations of COLORADO; and larvae caused some concern on alfalfa in southwest NORTH DAKOTA.

BEET ARMYWORM (Spodoptera exigua) caused heavy damage to alfalfa in the Brazos-Burleson County area of TEXAS, and light damage in several other Texas counties. It was not of economic importance in KANSAS alfalfa. YELLOW-STRIPED ARMYWORM (Prodenia ornighogalli) caused light to moderate damage to alfalfa throughout TEXAS, but caused little damage in OKLAHOMA. WESTERN YELLOW-STRIPED ARMYWORM (P. praefica) populations were medium to heavy in alfalfa plantings and pasture lands in the Central Valley and northern area of CALIFORNIA.

VARIEGATED CUTWORM (Peridroma saucia) damaged alfalfa in areas of MISSOURI during May. The damage started in the southeast in early May and progressed northward throughout the months. Larval counts ranged from one to as high as 22 per square foot. An outbreak also occurred in northeast ARKANSAS in late April on alfalfa. It was not of importance on KANSAS alfalfa. DARK-SIDED CUTWORM (Euxoa messoria) was very light on alfalfa in Lincoln County, NEBRASKA, in early May. DINGY CUTWORM (Feltia ducens) was abundant on alfalfa in the same Nebraska county at the same time as dark-sided cutworm, but it was noneconomic.

GARDEN WEBWORM (Loxostege similalis) activity began in OKLAHOMA in mid-May and increased to damaging proportions by late June. Except for periodic fluctuations, populations remained at the moderate to heavy level until mid-October in various locations throughout the State. Garden webworm caused light to moderate damage to alfalfa throughout TEXAS and the pest was observed on clover and alfalfa in MISSOURI. In NEBRASKA, garden webworm built up to large numbers on legumes in the eastern half of the State during July and continued through September. Many fields received light to very heavy damage. ALFALFA WEBWORM (L. commixtalis) caused trace amounts of loss to alfalfa in scattered COLORADO locations, and

garden webworm and alfalfa webworm were numerous in many alfalfa fields over KANSAS from mid-June until August. Controls were applied in a few cases.

An ALFALFA SEED CHALCID (Bruchophagus roddi) caused considerable localized reduction to alfalfa seed production in OKLAHOMA. Populations in UTAH were about normal for the year.

THRIPS were unusually abundant on many cultivated as well as native hosts in CALIFORNIA. Many infestations occurred in native grasses over the State. WESTERN FLOWER THRIPS (Frankliniella occidentalis) was a pest of alfalfa in a few California locations. Unspecified thrips were heavy on alfalfa in Clark, Lincoln and Nye Counties, NEVADA, in May; and they caused some damage to seed alfalfa in Delta, Garfield, Mesa and Montrose Counties, COLORADO. Several species of thrips were very abundant on alfalfa and clover in MARYLAND, and they were more abundant than usual on clover and alfalfa in ILLINOIS.

FIELD CRICKETS (Gryllus spp.) were a problem in alfalfa plantings in Imperial County, CALIFORNIA, during 1963.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) built up during the late spring in WASHINGTON and caused serious damage to clovers by late June in the central area. It migrated from clovers and other spring hosts to corn during the summer. Unseasonably hot weather in August and September allowed rapid buildup and damage. In IDAHO, this mite was also found generally on alfalfa and clovers in the south central and southwestern part of the State, with counts generally moderate, the latter part of the summer.

MITES in general developed on seed alfalfa in light to medium populations locally in Kern County, CALIFORNIA. Populations of BROWN WHEAT MITE (Petrobia latens) were generally light in the central and northern counties of NEVADA, but damage was medium to heavy on alfalfa in areas of Clark, Lincoln and Nye Counties in April and May. Also in Nevada, BANKS GRASS MITE (Oligonychus pratensis) severely damaged timothy in Lyon County in late April. This was the heaviest infestation since 1960 and the earliest season damage in this area. Populations of Tetranychus spp. were medium to heavy on alfalfa in areas of Clark and Nye Counties and several fields required treatment in March and April. Brown wheat mite was of only minor importance during 1963 on alfalfa in NEW MEXICO. Unspecified SPIDER MITES severely infested red clover throughout VIRGINIA in May, causing rather extensive damage. Specimens collected from Pittsylvania County in June were determined as STRAWBERRY SPIDER MITE (Tetranychus atlanticus). Similar infestations of Tetranychus spp. were recorded on several red clover and hay mixture fields in MARYLAND during June. In DELAWARE, high populations of strawberry spider mite caused severe injury to clover in central Kent County in early June.

LAWN, PASTURE AND RANGELAND INSECTS

Highlights:

SOD WEBWORMS were a problem in lawns in various parts of the country, with populations in several instances being high. They were regarded as the most important lawn and turf pests of 1963 in Missouri, and damage was quite extensive in several Illinois districts. FALL ARMYWORM caused heavy damage, as in 1962, to pasture grass, lawns and several crops in the eastern half of Texas. RANGE CATERPILLAR denuded large areas of rangeland in Colfax and Union Counties, New Mexico, and SAGEBRUSH DEFOLIATOR was heavy in many areas of northern Nevada. CHINCH BUGS severely damaged many lawns in Texas from Corpus Christi to Beaumont along the coast, and into east Texas as far north as Dallas. Heavy populations also developed in several areas of Louisiana. Chinch bugs were somewhat of a reduced problem on ornamental lawns in Florida, but unusually serious infestations

were reported from South Carolina. FALSE CHINCH BUGS were prevalent on rangeland, pasture, etc. in California, Nevada and Utah. The SPITTLEBUG (Prosapia bicincta), which has become a major pest of pastures in Florida in recent years, was more spotty in 1963.

A SOD WEBWORM (Crambus luteolellus) caused severe damage to lawns in Burnet and Nueces Counties, TEXAS, during 1963. SOD WEBWORMS (Crambus spp.) were present in damaging numbers in many eastern areas of NEBRASKA; heavy moth flights occurred in early September in Lancaster County. They were regarded as the most important lawn and turf pests of 1963 in MISSOURI. Damage was reported and observed in areas throughout that State. In ILLINOIS, moths were abundant in the eastern area May 25-29 and some larval damage occurred in lawns in June. By August, damage was quite extensive in east, central and west districts of Illinois, with the east-southeast and southeast districts also showing considerable damage. An estimated 2.5 percent of the lawns in Illinois were treated. C. trisectus was less abundant in turf in OHIO than in 1962. Adults of Crambus spp. were in flight in the Kingston and Slocum areas of Washington County, RHODE ISLAND, in late August. Turf specialists in the State were concerned. Sod webworms were responsible for heavy injury to young corn following sod in several central MARYLAND fields; several reports of injury to new lawns were received from Prince Georges County of that State in August. They were locally severe on lawns and cemeteries during August and September in VIRGINIA, especially in central, northern and southwestern areas. Populations of unspecified webworms were high during the summer months in southern NEW JERSEY. Northern and central New Jersey counties initially had moderate infestations which increased to high proportions during August and September.

BRONZED CUTWORM (Nephelodes emmedonia) caused minor damage to lawns in Lancaster County, NEBRASKA, but was abundant on turf in areas of southwestern OHIO. An unidentified CUTWORM was abundant in golf course greens that were aerified in spring of 1963 in Ohio. BLACK CUTWORM (Agrotis ipsilon) caused economic damage to spring-planted alta fescue in Linn County, OREGON, during July and August; and VARIEGATED CUTWORM (Peridroma saucia) damaged some lawn turfs in the Brazos-Burleson County area of TEXAS. ARMY CUTWORM (Chorizagrotis auxiliaris) caused damage to Bermuda grass lawns in Caldwell County, TEXAS, and damaged pasture and hay fields in Douglas County, OREGON, from April to July.

FALL ARMYWORM (Laphygma frugiperda) began building up during late August in TEXAS, and reached a peak during early November. It caused heavy damage to pasture grass, lawns and several crops in the eastern half of the State. This outbreak was comparable to the 1962 outbreak and considerably heavier than in 1961. Light to moderate infestations of fall armyworm were reported on Bermuda grass in GEORGIA and, in NORTH CAROLINA, it damaged a pasture in Pamlico County during late July and newly seeded fescue in Chatham and Randolph Counties during late September. Damage was reported more often than during 1962 in North Carolina. In the Ft. Pierce-Okeechobee area of FLORIDA, at least, populations of caterpillars on pastures were low. This included such pests as GRASS LOOPERS, CUTWORMS and ARMYWORMS. On ornamental turf in Florida, SOD WEBWORMS (Pachyzancla spp.) and fall armyworm were considered routine for the State as a whole. One report from Gainesville listed these pests as negligible on turf in this area. In SOUTH CAROLINA, damage to lawns by ARMYWORM (Pseudaletia unipuncta) and fall armyworm was much less than that noted in most previous years. The first report of heavy fall armyworm damage came from Hampton County on August 15. WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) was medium to heavy on alfalfa and pasture lands in the Central Valley and northern area of CALIFORNIA, and it damaged canarygrass pastures in Coos County, OREGON.

RANGE CATERPILLAR (Hemileuca oliviae) denuded large areas of rangeland in Colfax and Union Counties, NEW MEXICO. In one area near Farley, the larvae were found to move "as an army." Larvae were estimated at 800-900 per square yard along

a line with a depth of 8-10 feet. The area infested in New Mexico has increased each year for the past three years. SAGEBRUSH DEFOLIATOR (Aroga websteri) populations and damage to Artemesia tridentata were heavy in many areas of northern NEVADA, especially in Elko, Humboldt and Washoe Counties.

CHINCH BUG infestations were relatively light throughout NEW JERSEY during the midsummer months; however, populations increased to high levels the latter part of August through September. A CHINCH BUG (Blissus sp.) was found heavily damaging a lawn in Buchanan County, VIRGINIA, in early October. This is only the second time that this pest has been reported as damaging to lawns in Virginia since the survey program was started in 1954. HAIRY CHINCH BUG (Blissus leucopterus hirtus) was less abundant on turf in OHIO than in 1962. In TEXAS, Blissus leucopterus (subsp. probably insularis) severely damaged many lawns from Corpus Christi to Beaumont along the coast, and into east Texas as far north as Dallas. This is essentially the same area infested in 1962, with about the same degree of damage. In LOUISIANA, severe chinch bug infestations occurred in St. Augustine grass lawns around New Orleans, Baton Rouge, Lafayette and Alexandria. Insecticide resistance in New Orleans populations has developed to the point that control has become extremely difficult. A heavy infestation was reported on St. Augustine grass pasture near Lake Okeechobee in FLORIDA. A control method that apparently worked was raising the water table, then treating with the recommended phosphatic insecticide followed by a second application in two weeks. On ornamental turf in Florida, chinch bugs were still widespread on St. Augustine grass, but were somewhat of a reduced problem from some of the previous years. In SOUTH CAROLINA, chinch bugs were unusually serious from midsummer on to lawns, especially those of Charleston grass. Many more complaints have come from the Piedmont area of the State than in past years.

FALSE CHINCH BUGS (Nysius spp.) were very prevalent in most areas of CALIFORNIA, and heavy populations developed in several local areas of the State where they required treatment. They heavily infested rangeland in Douglas, Elko, Ormsby and Washoe Counties, NEVADA, in late July and August, and were more abundant in numbers and/or injury during 1963 in UTAH. A heavy migration was noted in the Richmond area of Utah during September.

Many locally heavy infestations of a GRASS BUG (Arhyssus scutatus) occurred over CALIFORNIA, resulting in migrations to other crops and into residences. In NEW MEXICO, heavy populations of another GRASS BUG (Labops hesperius) caused extensive damage to crested wheatgrass in reseeding areas near Cuba in the Santa Fe National Forest. Undetermined PLANT BUGS (Miridae) heavily infested Astralagus mackenzii in the agronony nursery at Matanuska, ALASKA. Hay mixtures were heavily infested by MEADOW PLANT BUG (Leptopterna dolabratus) in the central area of MARYLAND.

A SPITTLEBUG (Prosapia bicincta) has become a major pest of pastures in FLORIDA in recent years. It is a problem in coastal Bermuda grass pastures in northern Florida, and it was reported devastating many pastures in southern and central areas of that State in 1962; however, in 1963, infestations were more spotty. Moderate populations occurred in Palm Beach County. At least one heavy infestation occurred in Okeechobee County and reports of heavy infestations were received from Hendry County. In the St. Lucie County area, moderate spring populations of P. bicincta that had the potential to become serious, never developed into a severe infestation for some unknown reason. From Bradenton came reports that this spittlebug was greatly reduced from 1962 where it was very heavy on the widely used pasture grasses on the west coast. In the Belle Glade area, at least, heaviest infestations tend to occur during July and August, with adults difficult to find on pastures by mid or late November. Birds are reported as important natural enemies of this insect in Florida. In GEORGIA, this spittlebug was a problem on several varieties of lawn grasses during the year. Undetermined SPITTLEBUGS did not build up to the expected population levels on coastal Bermuda grass in SOUTH CAROLINA during 1963. Early rains had started a buildup, but the unusually dry weather during July, August and

September was not favorable for them. P. bicincta was found building up in the Clemson area about August, and it damaged holly.

YELLOW SUGARCANE APHID (Sipha flava) was reported at approximately the same abundance level in 1963 at the Ft. Pierce-Okeechobee area of FLORIDA. In the Belle Glade area, populations of this aphid were moderate to heavy on pangola grass in both the spring and fall. Some pastures were seriously damaged where control measures were delayed or not taken at all. LEAFHOPPERS and PLANTHOPPERS in the Belle Glade area of Florida were only of moderate density in the spring and summer, although the latter group of pests became more plentiful than the former as the season advanced. The leafhoppers were mostly Hortensia similis, Graminella spp. and Deltocephalus flavicosta; and the planthoppers were mostly Delphacodes spp. and Sogata spp.

RHODES-GRASS SCALE (Antonina graminis) has not been complained about in the Everglades of FLORIDA since the release of the parasitic encyrtid, Anagyrus antoninae, about seven years ago. Prior to that time, numerous inquiries were received each year. However, Rhodes-grass scale continued to be a problem on Bermuda grass lawns in the Las Cruces area of Dona Ana County, NEW MEXICO, during 1963. It is most severe on Tif-green variety of Bermuda grass in New Mexico. Other coccids of importance reported during the year were Chortinaspis subchortina which heavily damaged St. Augustine grass lawns in Bell County, TEXAS; Odonaspis ruthae which was collected for the first time in central ARKANSAS; and Heterococcus graminicola caused some damage to blue grass being grown for seed in Spokane County, WASHINGTON. The latter species was in association with a thrips, Aptinothrips rufus. GROUND PEARLS were widespread in the coastal areas of SOUTH CAROLINA during the year on lawns.

JAPANESE BEETLE (Popillia japonica) was less abundant in turf in OHIO and reports of damage to turf in RHODE ISLAND and NEW JERSEY were low. The same was true in SOUTH CAROLINA except in newly infested areas. NORTHERN MASKED CHAFER (Cyclocephala borealis) was also less abundant in OHIO turf. GREEN JUNE BEETLE (Cotinis nitida) larvae were lighter in golf courses in northwest ARKANSAS than in 1962, but they caused some damage to newly sown fescue in the same area of the State during the year. Green June beetle was less abundant in most localities of SOUTH CAROLINA, but TEN-LINED JUNE BEETLE (Polyphylla decemlineata) caused localized damage to golf course greens. Also in South Carolina, a GROUND BEETLE (Agonoderus lineola) was reported from golf greens throughout the State and was the subject of much concern.

Square foot soil samples in Onondaga, Ontario and Wayne Counties, NEW YORK, showed little or no change in the average of three grubs of the EUROPEAN CHAFER (Amphimallon majalis) per square foot. Many of the larvae were infected with milky disease.

Several species of MAY BEETLES (Phyllophaga spp.) were turf pests in 1963. P. lanceolata caused considerable localized damage to Johnson grass and alfalfa fields in Caldwell County, TEXAS; P. anxia (first-stage larvae) ranged 2-3 per square foot in upper 6 inches of soil in Cherry County, NEBRASKA, wet meadows in late April; and P. ephilida caused damage to a lawn in Champaign, ILLINOIS. Larval counts in the latter case were 4, mostly third instar, per square foot on August 26. A number of other States reported turf damage, but the species of Phyllophaga involved were not determined.

A REDTOP WEEVIL (Centrinaspis capillatus) was injurious to production of redtop seed in ILLINOIS. Counts varied 0-40 per 100 sweeps in grass and also swept from wheat in the east-southeast and southeast districts May 20-23. Five new county records (Williamson, Hamilton, Saline, Massac, Pulaski) were established in Illinois during 1963. Undetermined BILLBUG larvae were present in bluegrass sod in Lancaster County, NEBRASKA, in September. A BILLBUG (Sphenophorus cicatristriatus) caused considerable damage to lawns and golf courses in the Kennewick-Pasco area of WASHINGTON. It was also reported from Yakima. Populations were as high as 25 larvae per square foot of sod. This species has not previously been

recorded from Washington or as a lawn pest. In TEXAS, S. venatus was found in Bermuda grass lawns in Lubbock County. A CERAMBYCID (Derobrachus brevicollis) caused severe damage to Bahia grass in Miller County, GEORGIA. Lighter infestations were observed in Early County, same State. This pest has previously been reported in Bahia grass in Seminole and Dougherty Counties, Georgia.

An AUSTRALIAN SOD FLY (Metoponia rubriceps) was locally heavy in lawns and turf in a limited area of San Francisco and San Mateo Counties, CALIFORNIA. This is the only location where the fly occurs in the State.

Unspecified TERMITES damaged range grass in parts of Webb and Johnson Counties, TEXAS. A CRICKET (Nemobius fasciatus) ranged 6-8 per square yard in field margin in Nemaha County, NEBRASKA, in September. Scattered populations invaded some residential areas of Nebraska in July and August.

Moderate to heavy populations of a BERMUDA GRASS MITE (Aceria neocynodonis) damaged Bermuda grass lawns in NEW MEXICO at Hobbs, Lea County; Carlsbad, Eddy County; and in Las Cruces, Dona Ana County. The mite was recorded in two localities of southern Nye County, NEVADA, during the year. Nye County was not previously known to be infested. In one area of southern Nye County, damage to Bermuda grass was heavy. In RHODE ISLAND, a MITE (Aculus dubius) was common on timothy in a field in Kingston, Washington County, in late April.

MOLE CRICKETS were reported worse than usual in north FLORIDA pastures, including Pensacola Bahia grass. They were also more conspicuous than in average years on ornamental turf during the spring in Florida.

SOYBEAN AND PEANUT INSECTS

Highlights:

CORN EARWORM was, by and large, the major pest of soybeans along the Atlantic Seaboard and the Southern States, but several other lepidopterous pests, such as CABBAGE LOOPER, BEET ARMYWORM, VELVETBEAN CATERPILLAR, GREEN CLOVERWORM and GRANULATE CUTWORM, were damaging locally. LESSER CORNSTALK BORER was the principal pest of peanuts in Texas, and the pest reached damaging proportions in Oklahoma. SOUTHERN CORN ROOTWORM continued to be a problem in some Georgia peanut fields. MEXICAN BEAN BEETLE was locally a problem on soybeans in Maryland, Delaware, Virginia, North Carolina and South Carolina, and was of some importance in Alabama and Georgia. BEAN LEAF BEETLE required a few treatments in Arkansas, and it caused conspicuous foliage injury to soybeans on the Eastern Shore and southern area of Maryland. STINK BUGS are important pests of soybeans in Arkansas, with GREEN STINK BUG occurring statewide and being the most important. STRAWBERRY SPIDER MITE was heavy on soybeans during mid to late summer in Delaware and Maryland, and undetermined mites caused heavy damage to soybeans during August on the Eastern Shore of Virginia.

CORN EARWORM (Heliothis zea) was the most important pest of soybeans in ARKANSAS during 1963, with approximately 20 percent of the acreage being treated primarily for this pest. Tobacco budworm (H. virescens) was also found on soybeans in Arkansas, but of the 689 Heliothis collected on soybeans for determination, only one was H. virescens. In LOUISIANA, corn earworm ranged 6-24 per 30 feet of row on soybeans in the east central area, but was generally low in the northeast. The insect was rather general throughout the peanut-growing areas of TEXAS and infestations ranged from light to heavy. Corn earworm and cabbage looper (Trichoplusia ni) were the major pests of soybeans during 1963 in ALABAMA. The corn earworm complex became a serious pest from the central

counties southward. Corn earworm caused quite a lot of damage to soybean pods in GEORGIA and infestations were general over the State. In SOUTH CAROLINA, corn earworm caused the greatest amount of damage to soybeans, but it was much less noticeable than usual. Large buildups of moths in early August failed to materialize as heavy feeding on either leaves or pods. However, the pest did seriously damage soybeans in the coastal area of South Carolina the last half of July and it heavily damaged widely scattered fields of soybeans in the Coastal Plains area of NORTH CAROLINA during the latter half of August and the first half of September. Most fields examined in North Carolina had 0-5 larvae per 25 feet of row. A heavily infested field in Washington County had 48 larvae per 25 feet of row. Infestations on soybeans in the eastern area of VIRGINIA were about as widespread and severe as in 1962 and, in general, were controlled before extensive damage occurred. Damage to soybean pods in MARYLAND was light, considerably below that of 1962. However, larvae did cause considerable feeding injury to soybean pods in late-planted fields during September in Kent and Sussex Counties, DELAWARE.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused heavy, local damage to peanuts in Austin County, TEXAS, in 1963. For the second straight year, this species was the principal pest of peanuts in Texas. It was particularly heavy in the Red River, north central and west cross timbers areas of the State and became a late-season problem in the southern peanut areas of Texas. In OKLAHOMA, the borer reached damaging population levels for the first time on peanuts. Infestations varied considerably, but of 12 counties sampled, 8 had one or more fields of peanuts showing at least 8 percent nut damage. In SOUTH CAROLINA, far fewer complaints were received regarding lesser cornstalk borer on such crops as soybeans, cowpeas, sorghum and millet than in previous dry summers.

GREEN CLOVERWORM (Plathypena scabra) larvae were present on soybeans in most areas of DELAWARE by early August. Populations generally increased on soybeans during late August, with counts averaging between 30 and 50 larvae per 100 sweeps. In MARYLAND, numbers were about normal on soybeans, ranging from light to moderate in all sections during the summer. Green cloverworm was fairly numerous on SOUTH CAROLINA soybeans during July, and it was present on that crop in both ARKANSAS and LOUISIANA during the season although not of economic importance.

CABBAGE LOOPER (Trichoplusia ni) never did become extremely abundant on soybeans in SOUTH CAROLINA. As early as August 1, disease was noted taking its toll. In late August, however, the virus disease was much more noticeable in cotton than in soybeans on loopers. Both cabbage looper and BEET ARMYWORM (Spodoptera exigua) caused light to moderate defoliation of soybeans in GEORGIA. Damage by the latter species occurred in the southwest area. Beet armyworm and GRANULATE CUTWORM (Feltia subterranea) were unusually abundant on and injurious to soybeans in Charleston County, SOUTH CAROLINA, during the last half of July. Growers reported beet armyworm not satisfactorily controlled with insecticides commonly used on that crop. Granulate cutworm caused serious injury to young soybean plants growing in fields planted to spring-crop tomatoes. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) caused light to moderate defoliation of soybeans in GEORGIA, but did very little damage in SOUTH CAROLINA because it appeared late in the season. Velvetbean caterpillar and LOOPERS, predominantly Pseudoplusia includens, were present on soybeans in several LOUISIANA parishes, but counts were not high. In ALABAMA, cabbage looper and corn earworm were the major pests of soybeans. It was felt, however, that a looper other than cabbage looper was present in soybeans in the large acreage in the southwest area of the State. Controls became most difficult if not impossible. Other lepidopterons of lesser importance present on soybeans in Alabama were velvetbean caterpillar, FALL ARMYWORM (Laphygma frugipdera), SALT-MARSH CATERPILLAR (Estigmene acrea) and beet armyworm. The beet armyworm was first reported in cotton in Alabama in 1962 and was a serious foliage pest to isolated fields of soybeans in the central and southwestern sections of the State in 1963.

BLACK CUTWORM (Agrotis ipsilon) and granulate cutworm damaged up to 35 percent of the peanuts in widely scattered fields of the northeast peanut-growing area of NORTH CAROLINA during August and September. Infestations of velvetbean caterpillar, corn earworm and FALL ARMYWORM (Laphygma frugiperda) were light to moderate on peanuts in GEORGIA, and SALT-MARSH CATERPILLAR (Estigmene acrea) required controls in some peanut fields in Fayette and Waller Counties, TEXAS. Damage to peanuts by RED-NECKED PEANUTWORM (Stegasta bosqueella) was light to moderate in GEORGIA, and was considerable in the south central area of OKLAHOMA.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) continues to be a problem in some GEORGIA peanut fields. Known infestations located in Early, Clay, Randolph, Calhoun and Sumter Counties. Populations on peanuts in NORTH CAROLINA were lighter than usual during 1963 due to dry conditions during mid and late summer. Damage to the fruit was later than usual in North Carolina and did not begin until mid-August.

MEXICAN BEAN BEETLE (Epilachna varivestis) adults and larvae inflicted heavy foliage and pod injury to several fields of early maturing soybeans in Wicomico and Worcester Counties, MARYLAND, and the beetle caused extensive damage to young soybeans in eastern VIRGINIA early in the season. It was normal in abundance later in the season. Mexican bean beetle was generally not a serious pest of soybeans in NORTH CAROLINA, although heavy lacing of a few fields occurred in some areas. The pest attacked some plots on the Clayton Experiment Station unusually early and it was necessary to apply an insecticide to 6-inch plants. Locally in SOUTH CAROLINA, Mexican bean beetle was the most important pest of soybeans and it caused some serious damage. The beetle was also found causing light to moderate defoliation of soybeans in GEORGIA, and was a pest of lesser importance in ALABAMA.

BEAN LEAF BEETLE (Cerotoma trifurcata) adults were again common during the summer in MARYLAND, and it caused conspicuous foliage injury to soybeans on the Eastern Shore and in the southern area. The beetle was detected on soybeans in several VIRGINIA counties. Damage by this species and a LEAF BEETLE (Colaspis sp.) was localized on soybeans in SOUTH CAROLINA and confined to areas which had previously grown grass and clover. Bean leaf beetle required a few treatments in ARKANSAS, and light damage was reported on soybeans in NEBRASKA. Bean leaf beetle was also present on soybeans in ALABAMA, but it was not of major importance. The adults of SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) did considerable feeding on foliage and in blossoms of soybeans in Alabama, but damage from this pest was negligible.

MARGINED BLISTER BEETLE (Epicauta pestifera) was heavy locally on soybeans in Bryan County, GEORGIA; and undetermined BLISTER BEETLES were present but did not cause severe damage to soybeans in SOUTH CAROLINA. ALFALFA WEEVIL (Hypera postica) adults were found feeding on young soybeans in DELAWARE during June. This was a new host record for alfalfa weevil in that State.

STINK BUGS are important pests of soybeans in ARKANSAS, with GREEN STINK BUG (Acrosternum hilare) occurring statewide and being the most important. Other species of stink bugs occurring on soybeans in Arkansas are SOUTHERN GREEN STINK (Nezara viridula) and BROWN STINK BUG (Euschistus servus). Southern green stink is found mainly in the southeast part of Arkansas. In NORTH CAROLINA, green stink bug and brown stink bug were considerably lower in number on soybeans than in 1962. Counts in central Coastal Plain counties ranged 0-3 per 25 feet of row and counts in several central coastal counties generally ranged 0-8 per 50 feet of row. Unspecified stink bugs were present on soybeans in limited numbers in SOUTH CAROLINA, but severe damage was not reported. Green stink bug lightly infested soybeans in some areas of VIRGINIA during 1963.

TARNISHED PLANT BUG (Lygus lineolaris) was present on soybeans in DELAWARE, and light to moderate numbers of POTATO LEAFHOPPER (Empoasca fabae) were present on soybeans in all sections of MARYLAND during the season.

THRIPS were very abundant on soybeans in MARYLAND, with streaking being noticeable on the young plants. During July in ILLINOIS, many soybean fields had 100 percent of the soybean plants showing light to heavy silvering. In GEORGIA, infestations of thrips were light to heavy on peanuts, but generally lighter than in an average year. Peanut growers are doing a better job of early season insect control in Georgia. Thrips also damaged peanuts in the south central area of OKLAHOMA during 1963.

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) was present on most soybeans throughout DELAWARE by early August, with approximately 4 percent of the fields observed at that time having heavy infestations. However, by mid to late August, many soybean fields had very high populations and were showing rather heavy feeding injury. This spider mite was above normal on soybeans in MARYLAND, and during mid to late summer, several fields on the lower Eastern Shore required treatments. TWO-SPOTTED SPIDER MITE (T. telarius) was common on soybeans in ILLINOIS, with light damage occurring in the west district by late June. Unspecified SPIDER MITES were generally distributed on soybeans on the Eastern Shore of VIRGINIA where they caused heavy damage in August, and unspecified mites caused considerable concern to peanut growers in most all areas of TEXAS during 1963.

SOYBEAN CYST NEMATODE (Heterodera glycines) surveys were conducted in 22 of the major soybean-producing States during 1963. Extensions of infested areas amounting to 22,149 acres were found in the eight previously known infested States. (Arkansas, Illinois, Kentucky, Mississippi, Missouri, North Carolina, Tennessee, Virginia). Surveys in other soybean-producing States have been negative. In the eight States infested with soybean cyst nematode, more than 109,000 acres have been found infested based on soil surveys. In some counties, the infestation has not been delimited, but based on an estimate, there probably are more than 350,000 acres infested. During the 1963 crop season soybean cyst nematode caused some field damage in ARKANSAS, MISSOURI, NORTH CAROLINA and TENNESSEE.

In Missouri, soybean cyst nematode reduced soybean yields an average of 8.5 percent in 434 fields in which damage was observed in 7 known infested counties in the southeastern area during 1963. Losses in individual Missouri fields ranged from a trace to near complete failure. Several badly damaged fields were plowed up and replanted to other crops. An estimated 39,161 bushels of soybeans, valued at $100,247 were lost due to the nematode in 434 fields. Estimated loss per field, which averaged 44 acres in size, was 90 bushels with a value of $231. Losses observed exceed those of any previous year. The above estimates are limited to 434 fields where damage actually was observed. There were many more fields in the Missouri counties where loss was not recorded because an overall intensive survey was not practical. It is evident there is quite general distribution of the pest in extensive areas of Dunklin, New Madrid, Pemiscot and Stoddard Counties. It appears likely the nematode is present in over 100,000 acres in the 7 known-infested counties. Presence of the pest has been confirmed in 952 Missouri fields involving approximately 39,000 acres at the close of 1963. Although damage actually observed during 1963 was estimated at $100,000, it is quite likely that overall loss, including the many fields where notes were not taken, was at least $200,000 to $300,000.

SUNFLOWER, SAFFLOWER AND FLAX INSECTS

Many sunflower fields in the eastern area of NORTH DAKOTA were heavily infested by SUNFLOWER MOTH (Homoeosoma electellum) and BANDED SUNFLOWER MOTH (Phalonia hospes). Considerable feeding was observed. In addition, larvae of a MORDELLID BEETLE (probably Mordellistena) were taken from sunflower stalks near Wyndmere, North Dakota. Considerable breakage of stalks was observed. Sunflower moth was light on sunflowers in Sacramento and Yolo Counties, CALIFORNIA; and it severely damaged sunflowers in Hill County, TEXAS.

THRIPS were unusually abundant on many cultivated as well as native hosts in CALIFORNIA. WESTERN FLOWER THRIPS (Frankliniella occidentalis) was a pest of safflower plantings in a few locations. In addition, LYGUS BUGS (Lygus spp.) were numerous and damaging to many crops in California and required considerable control. The problem of resistance made control difficult in some areas. Alfalfa, clover and safflower were the cereal and forage crops most affected.

Light to moderate infestations of HARLEQUIN BUG (Murgantia histrionica) occurred on mustard in Zavala County, TEXAS.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was present in moderate numbers in NORTH DAKOTA except for a few instances of considerable buildup on flax in the southeast. SEED-CORN MAGGOT (Hylemya platura) infested flax in Bexar County, TEXAS. Larvae were cutting flax below the ground level on several farms.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 11 March 13, 1964

SB
823
C77
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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 March 13, 1964 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG and other grain aphids continue at low levels in the Southwest. PEA APHID and SPOTTED ALFALFA APHID infestations on alfalfa also light. Populations of WINTER GRAIN MITE varied greatly in 4 Texas counties surveyed. Moderate increases of LYGUS BUGS noted on alfalfa in Yuma and Maricopa Counties, Arizona. ALFALFA WEEVIL adults observed in Colorado; LESSER CLOVER LEAF WEEVIL adults in Virginia; and SOUTHERN CORN ROOTWORM adults in Alabama. (pp. 172-74).

GREEN PEACH APHID most important pest of lettuce in Yuma and Maricopa Counties, Arizona, and CUTWORMS required controls on seedling cantaloups in Yuma County, Arizona. APHIDS caused light to heavy damage to cabbage in Sanford, Florida. (p. 176).

CATTLE LICE continue troublesome in Utah, Oklahoma and Georgia. CHICKEN BODY LOUSE heavy in northwest Arkansas; most flocks need treatment. (p. 177). No authentic SCREW-WORM cases reported in over 11 weeks in Southwest. (p. 177-78).

DETECTION

WESTERN CORN ROOTWORM reported in additional Kansas counties. (p. 173).

CORRECTIONS

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SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 178).

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Summary of Insect Conditions in the United States - 1963

Fruit Insects

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Stone Fruit Insects. (p. 190).
General Deciduous Fruit Insects. (p. 195).
Nut Crop Insects. (p. 197).
Grape Insects. (p. 199).
Blueberry, Cranberry and Currant Insects. (p. 200).
Avocado Insects. (p. 201).
Olive Insects. (p. 202).
Citrus Insects. (p. 202).

WEATHER OF THE WEEK ENDING MARCH 9

The weather on Monday, March 2, featured generous rains in the South - 3.27 inches at Abbeville, Alabama; subzero cold over the northern Great Plains; 8° below zero in northern Minnesota; heavy snow in the central and southern Rocky Mountains, with 9 inches at Flagstaff, Arizona.

The intensifying snowstorm moved eastward and divided. The northern system produced heavy snow over the Plains and midwest - up to 7 inches over parts of Oklahoma and more than 12 inches over parts of Illinois, Wisconsin and Michigan. The snow was whipped by strong winds of up to 72 m.p.h. at O'Hare Field, Chicago, Illinois; 80 m.p.h. near Milwaukee, Wisconsin; and 86 m.p.h. at Findlay, Ohio.

The southern system produced at least a dozen tornadoes in 6 States on Wednesday. The tornadoes killed one person in Arkansas and injured others in Missouri, Kentucky, Tennessee and Mississippi. Torrential rains occurred in connection with the squall lines. Wednesday totals included 3.62 inches at Evansville, Indiana; 4.17 inches at Huntington, West Virginia, and 3.03 inches at Memphis, Tennessee.

Mild temperatures prevailed over the eastern United States on Thursday: 71° F. at Albany, New York; 77° at Washington, D. C.; and 90° at Miami, Florida. A new storm in the Far Northwest produced moderate rains along the coast, accompained by winds of nearly 70 m.p.h., and snow to the interior.

As the weekend approached, a storm developed in the central Rocky Mountains. Wind-driven snow covered a broad belt from the Rocky Mountains, across the adjacent Plains, to the upper reaches of the Mississippi River. Mild, dry, mostly fair weather continued over the eastern third of the country and the extreme South.

More than a foot of snow fell in the Colorado Rockies Friday and Colorado Springs, Colorado, received 13 inches over the weekend. The storm moved quickly to the east. As frigid temperatures poured into the Dakotas and Minnesota, the weather over the South and East was like early summer. The front stretched from Texas to New England. Torrential rains occurred over the middle Mississippi River Valley and the lower Ohio River Valley. Tornadoes caused a number of deaths and much property damage.

Temperatures for the week averaged below normal from the Pacific Ocean to the Dakotas, Nebraska, Kansas, Oklahoma, and New Mexico, and above normal from those States eastward to the Atlantic coast. Temperature departures ranged from -14° over the Great Basin to +10° or more over the Ohio River Valley.

The heaviest rains fell over the lower Ohio River Valley where some weekly totals exceeded 7 inches. Rainfall totals exceeded 2 inches at some places along the Pacific coast from Tatoosh Island, Washington, to Eureka, California. Totals exceeded 2 inches from the lower Mississippi River Valley to the Appalachians. Most of the area from California to the Great Lakes received less than 0.5 inch of rain during the week. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light, spotted infestations continue in small grain in Chaves and Eddy Counties. (N. M. Coop. Rpt.). TEXAS - Found in 2 fields near Ethel, Grayson County; averaged only 3 per foot of drill row. Noneconomic at present. (Tex. Coop. Rpt.). OKLAHOMA - Remains below economic level; fewer than 10 per linear foot noted in Garfield and Kingfisher Counties. Negative in Cotton, Tillman, Beckham, Le Flore and Sequoyah Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light on small grains checked in Garfield and Kingfisher Counties; ranged 2-10 per linear foot. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalsophum fitchii) - OKLAHOMA - Light populations present in Garfield (4-10 per foot) and Kingfisher (5-7 per foot) Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light; ranged 1-6 per linear foot in fields checked in Garfield and Kingfisher Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - In 100 sweeps, 18 adults collected on common rye at Gainesville, Alachua County. (Mead).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Light numbers noted in scattered fields in Garfield and Kingfisher Counties; ranged 1-1.5 per linear foot. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Survey of infested corn stalks in Beckham County shows 30 percent with live larvae. (Okla. Coop. Sur.).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - KANSAS - Additional positive collections made in Nemaha, Brown, Doniphan, Jefferson, Leavenworth and Shawnee Counties during 1963. (Peters).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Inspections made in Denton, Cooke, Grayson and Collin Counties. Populations varied greatly; heaviest populations in fields planted to small grain in 1963. (Tex. Coop. Rpt.). OKLAHOMA - Counts of 25 per linear foot noted in one field in Kingfisher County. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Infestations general on alfalfa in all areas of Maricopa, Pinal and Yuma Counties; continue very light. (Ariz. Coop. Sur.). OKLAHOMA - Light numbers only in overwintering alfalfa in Kingfisher County; checks negative in east central areas. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.). FLORIDA - Infesting Hairy Peruvian alfalfa; about 2-3 per sweep. This is definite increase over previous collections. (Mead).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Continues spotted and light in alfalfa areas of Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.). OKLAHOMA - Occasional specimen noted in Kingfisher County, alfalfa; checks negative in east central areas. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Occasional specimen collected on warm days in small grain and legumes in northwest area. (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Moderate increases noted in alfalfa in Yuma and Maricopa Counties. Counts per 100 sweeps averaged 17 in Yuma County and 15-20 in Maricopa County. (Ariz. Coop. Sur.).

POTATO LEARHOPPER (Empoasca fabae) - FLORIDA - Populations, presumably this species, remain very low and show no buildup on alfalfa at Gainesville, Alachua County. (Mead).

A LEAFHOPPER (Cuerna costalis) - FLORIDA - Four adults taken in 200 sweeps on 12 to 18-inch high lupine at Gainesville, Alachua County. (Mead, March 3).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Slight increases found on alfalfa in Pinal, Maricopa and Yuma Counties. Larval counts per 100 sweeps averaged 10 in Pinal and Maricopa and 15 in Yuma County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - COLORADO - Adult activity observed on warm days; early controls underway in Mesa County. (Bulla).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - VIRGINIA - Adults collected in alfalfa at Palmyra, Fluvanna County. (Tarpley, Watts; Feb. 17).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Larval increases found in Pinal, Maricopa and Yuma Counties. Approximately 20 percent of terminals infested or damaged in some areas of Pinal and Maricopa Counties; about 10 percent damage found in Yuma County, except on Yuma Mesa where 60-80 percent terminal damage was found. (Ariz. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Large numbers of adults observed on oats, crimson clover and vetch in Henry County; temperatures reached 75-80° F. (Hartzog, Davis, Barefield, et al.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Continues numerous in many alfalfa fields in Yuma County. (Ariz. Coop. Sur.).

FRUIT INSECTS

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on bark and trunk of pear, peach and apple trees in Lompoc, Santa Barbara County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Medium on apple trees in Avila Beach, San Luis Obispo County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Moderate on Hood pear at Glen St. Mary, Baker County. (Collins, Feb. 25). ALABAMA - On numerous, isolated peach trees in Henry County. (Hartzog, Davis, Barefield).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Noted in mummy peaches in Mettler Station area, Kern County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspyresia caryana) - ALABAMA - Of 100 pecan shucks examined in orchard in Henry County, 20 larvae and 2 pupae found; pupation just started. (McQueen).

A LEAFHOPPER (Empoasca kraemeri) - FLORIDA - Light on leaves of mango at Goulds, Dade County. (Knowles).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Light on olive trees in Woodland area, Yolo County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Aspidiotus lataniae) - CALIFORNIA - Heavy on grapevines in Avila Beach, San Luis Obispo County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severe on stem of persimmon at Jacksonville Beach, Duval County. (King, Feb. 26).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy infestations found on wild mustard weed hosts at bases of tangerine and orange interplants in Yuma County. Previous tree indexes indicated tangerines in this area infected with tristeza. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on orange trees in San Simeon, San Luis Obispo County. (Cal. Coop. Rpt.).

CITRUS BUD MITE (Aceria sheldoni) - CALIFORNIA - Adults heavy on navel orange trees in Inglewood, Los Angeles County; this eriophyid usually attacks lemon in State. (Cal. Coop. Rpt.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Light on bushberries in San Luis Obispo, San Luis Obispo County, and light on citrus in Colton, San Bernardino County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - General in lettuce fields of Maricopa and Yuma Counties. Infestations very small, with little control necessary. (Ariz. Coop. Sur.). FLORIDA - Caused light damage to 4 percent of 200 cabbage plants at Sanford, Seminole County. (Desin).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Larvae light on strawberry plants in Selma, Sanger and Reedley, Fresno County. (Cal. Coop. Rpt.).

CUTWORMS - ARIZONA - Unspecified species present in field of seedling cantaloups in Yuma County; controls necessary to prevent heavy losses. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Counts per 100 lettuce plants averaged 160 and 180 in Yuma and Maricopa Counties, respectively. Most important pest of this crop in these counties. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Small populations found on lettuce in Yuma County; not yet a problem. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Brooks and Colquitt Counties. (Johnson).

APHIDS - FLORIDA - Caused light to heavy damage to cabbage in Sanford, Seminole County. (Desin).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - ALABAMA - Extremely high numbers on roots of large purple top turnips in home garden in Henry County. (Barefield et al.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light damage to 96.5 percent of 200 celery plants at Sanford, Seminole County. (Desin).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco in the plant bed in southern area. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Very light on tobacco in the plant bed in southern area. (Johnson).

COTTON INSECTS

A WEEVIL (Anthonomus sp.) - ARIZONA - Overwintering weevils not yet found in ground trash in survey areas of Pinal and Yuma Counties. Adults and larvae still found in bolls in infested fields. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Late instars found in checking roots of cotton in fields in southern Eddy County. Majority were dead. (N.M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Survey showed only 0.3 beetle brood tree per 1,000 acres over total of 2 million acres. Controls applied to active brood trees. Scattered, active brood trees located by ground survey in Jasper County; most infested trees previously struck by lightning. Five spots containing total of 13 brood trees located and controlled in southern Tyler County. (Tex. Forest Pest Comm., Feb. Rpt.). NORTH CAROLINA - Limited control work continues in Davidson and Randolph Counties. Some landowner control underway in Warren and Gates Counties. Estimated 75 percent of bark surfaces of infested trees being worked by woodpeckers in these areas. (Green).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Damage continues to decline; no additional infestations reported. (Tex. Forest Pest Comm., Feb. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - I. avulsus, I. grandicollis and I. calligraphus observed associated with Dendroctonus frontalis brood trees. No unusual infestations reported. (Tex. Forest Pest Comm., Feb. Rpt.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Examination of 3 to 6-year-old loblolly and shortleaf pine planting reveals extremely large numbers of pupae per tree; 3 pupae in tips of every bud on many trees not uncommon. No emergence noted. (Dennis et al.).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Heavy on pine at home in Alexandria. Det. by M. Kosztarb. (Rowell, Feb. 3).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - VIRGINIA - Severe on seedling white pines locally in Augusta County. (Rowell, Morse, Feb. 19).

A MARGARODID SCALE (Stomacoccus platani) - CALIFORNIA - Adults heavy on twigs and limbs of sycamore trees in Santa Maria, Santa Brabara County. (Cal. Coop. Rpt.).

A SHIELD BEARER (Coptodisca sp.) - CALIFORNIA - Eggs heavy on Quercus sp. in Red Bluff, Tehama County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (Pseudococcus citri) - CALIFORNIA - Heavy on violets in Biggs, Butte County. (Cal. Coop. Rpt.).

A MEALYBUG (Pseudococcus obscurus) - CALIFORNIA - All stages heavy on fern stock in nursery in Oakland, Alameda County. (Cal. Coop. Rpt.).

TEA SCALE (Fiorinia theae) - ALABAMA - Causing serious damage to Camellia japonica at numerous homes and public buildings in Henry County. Plants still suffering from severe root and stem damage caused by extreme cold conditions during winter of 1962-63. Severe damage also noted on isolated Burford holly in Lee and Montgomery Counties. (McQueen).

HEMISPHERICAL SCALE (Saissetia hemisphaerica) - CALIFORNIA - Heavy on fern stock in retail store in Fresno, Fresno County, and heavy on palm fronds in Leucadia, San Diego County. (Cal. Coop. Rpt.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on toyon shrubs in Memorial grounds in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

ARMORED SCALES - FLORIDA - Pseudoparlatoria ostreata locally severe on stem of Acalypha sp. at Fort Pierce, St. Lucie County. (Campbell, Feb. 24). CALIFORNIA - Aspidiotus sp., near arcostaphyli, heavy on Joshua trees in Claremont, Los Angeles County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Macrosiphum rosae medium on roses in Fresno, Fresno County; unusually early this season. (Cal. Coop. Rpt.). OKLAHOMA - Cinara thujafilina active on arborvitae in Stillwater area, Payne County. (Okla. Coop. Sur.). MARYLAND - Undetermined species infesting iris indoors at University Park, Prince Georges County. (U. Md., Ent. Dept.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Medium on Aralia elegantissima nursery stock in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

A SPIDER MITE (Petrobia harti) - CALIFORNIA - Adults heavy on oxalis in Camarillo, Ventura County. (Cal. Coop. Rpt.).

MILLIPEDS - ALABAMA - Large numbers invaded azalea plant beds in nursery in Mobile County. Causing considerable damage to roots and in some cases entire plants girdled. (Seibels, Wallace et al.)

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Continuing to decline; counts on yearling steers range 0-8 per head, averaged 2. (Okla. Coop. Sur.).

MOSQUITOES - DELAWARE - First instars of Aedes canadensis found in woodland pools in area in New Castle County. (Lake, Mellott).

CATTLE LICE - UTAH - Numerous untreated cattle herds conspicuously infested in Emery and Carbon Counties. (Knowlton). OKLAHOMA - Infestations of several species appear to be increasing in north central areas with considerable loss of hair on cattle noted. Ranged from under 1 per part to 3 per part. (Okla. Coop. Sur.). GEORGIA - Infestations of Solenopotes capillatus on 105 Herford yearlings in Putnam County ranged very light to heavy; averaged 3.7 per square inch. Linognathus vituli heavy on Herford cows in Butts County. (Roberts).

HOG LOUSE (Haematopinus suis) - ALABAMA - Examination of herd of 50 feeder hogs in Henry County showed heavy infestation. Other herd infestations much lighter. (Davis, Barefield et al.).

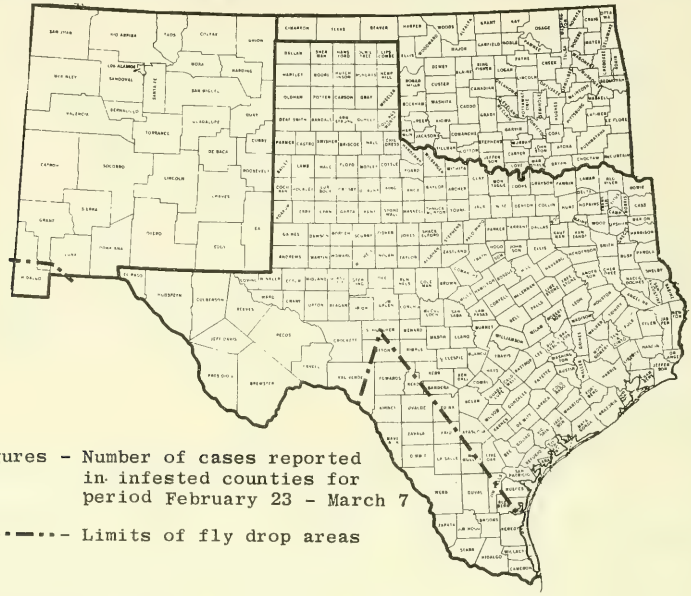
CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Infestations continue heavy in northwest area; most flocks checked need treatment. (Ark. Ins. Sur.).

CAT FLEA (Ctenocephalides felis) - OKLAHOMA - Annoying in homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

No screw-worm cases were reported during the period February 23-29 nor again in the period March 1-7. This is over 11 weeks since the last authentic case of screw-worm was found in the eradication area.This time period is greater than any known pupation period. During the period February 23-29, owing to poor flying weather, fewer sterile flies were released. Approximately 13 million sterile flies were released in Texas and one million in New Mexico during that period; 19 specimens, which were not screw-worm, were reported from Texas.

During the period March 1-7, Texas ranchers submitted 43 cases of myiasis; 4 cases which were not screw-worm were reported from Arizona and one case of screw-worm collected in November, 1963, was also reported. Almost 86 million sterile flies were released during the period March 1-7. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 23 - March 7

-·-·-·-·- Limits of fly drop areas

HOUSEHOLD AND STRUCTURAL INSECTS

CLUSTER FLY (Pollenia rudis) - MICHIGAN - Annoying in Lansing area homes. (Janes). MARYLAND - Adults active and annoying in several homes in Baltimore and Prince Georges Counties. (U.Md., Ent. Dept.).

BLACK BLOW FLY (Phormia regina) - OKLAHOMA - Adults annoying around some public buildings in Stillwater area, Payne County. (Okla. Coop. Sur.).

COWPEA WEEVIL (Callosobruchus maculatus) - CALIFORNIA - Adults heavy in home in Fresno County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - VIRGINIA - Adults common in home in Orange, Orange County. (Tarpley, Estes, Feb. 24).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - DELAWARE - Adults present in home in New Castle County. (MacCreary).

CIGARETTE BEETLE (Lasioderma serricorne) - DELAWARE - Infesting chili powder and paprika in home in Kent County. (MacCreary).

BOXELDER BUG (Leptocoris trivittatus) - MICHIGAN - Caused some annoyance to home-owners in southern counties during springlike days of early March. (Dowdy). MARYLAND - Causing distinct annoyance by entering homes at Kensington, Montgomery County, and at Baltimore. (U.Md., Ent. Dept.) NORTH CAROLINA - Numerous in yard and on porch of home in Catawba County. (Giles, Robertson).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Causing some nuisance problems in homes in New Castle County. (Burbutis). VIRGINIA - Common in and around home in Montross, Westmoreland County. (Tarpley, Dawson, Feb. 24). MICHIGAN - Slightly active around homes. (Janes). UTAH - Invaded homes in Salt Lake City area, Salt Lake County. (Knowlton). NEW MEXICO - Nuisance by entering homes at Roswell, Chaves County. (N. M. Coop. Rpt.).

LARGER YELLOW ANT (Acanthomyops interjectus) - NORTH CAROLINA - Annoying numbers present in Wake County home. (Mount).

PAINTED HICKORY BORER (Megacyllene caryae) - MISSOURI - Emerging from firewood and wood materials stored in buildings in Boone County. (Houser, Thomas, Wood).

TERMITES - ARKANSAS - Heavy flight observed in building in Washington County; this is first report of season. (Ark. Ins. Sur.).

STORED-PRODUCT INSECTS

GRANARY WEEVIL (Sitophilus granarius) - NEVADA - Light in mixed feeds in feed-store in Gardnerville, Douglas County. (Bechtel, Rivers).

A FUNGUS BEETLE (Litargus balteatus) - CALIFORNIA - Adults light on grain debris on ranch in Corcoran, Kings County. (Cal. Coop. Rpt.).

Stored-product Insects in Alabama - Live adults of Sitophilus granarium, Attagenus piceus, Oryzaephilus surinamensis and a black fungus beetle recovered from 2 recently fumigated warehouses in Mobile County. Dead specimens of Lasioderma serricorne, Tribolium spp. and Sitophilus oryzae also recovered. (Seibels, Wallace).

SHALLOT APHID (Myzus ascalonicus) - COLORADO - Infesting onions in Fort Collins, Larimer County, chain store. Det. by M. A. Palmer. (Colo. Ins. Sur.).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - WISCONSIN - Workers observed searching with considerable "robbing" of hives occurring. Prevalent in area where about 75 percent of colonies exist. Flight occurred on warmer days of February. (Wis. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Occasional specimen observed in vetch in northwest area. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

NOCTUID MOTHS - CALIFORNIA - Light numbers of Litoprosopus coachella larvae entered sport shop in Chowchilla, Madera County; destroyed several garments and balsa wood. Larvae are occasionally a considerable nuisance and quite destructive to clothing, rugs and other fabrics when seeking pupation sites. (Cal. Coop. Rpt.). WISCONSIN - Four adults of Lithophane laticinera taken in blacklight trap at Middleton, Dane County, March 2. (Wis. Ins. Sur.).

FALL CANKERWORM (Alsophila pometaria) - MISSOURI - Moderate to heavy flights of males in Boone County. (Houser, Thomas, Wood).

A SEED BEETLE (Megacerus discoideus) - COLORADO - Live adults infesting morning-glory seed in areas west of Colorado Springs, El Paso County; field infestation moderately heavy. Det. by T. O.Thatcher. (Great West. Sugar Co., Oldemeyer).

GREEN PEACH APHID (Myzus persicae) - UTAH - Problem in some experimental greenhouses at Logan, Cache County. (Knowlton).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Scattered colonies increasing in citrus groves, town properties, residential lawns and other places in northern Hidalgo County. (Tex. Coop. Rpt., Page).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Extremely active in Henry County following 3-5 inches of rain; temperatures up to 80° F. Balls of ants 1-5 inches in diameter observed floating on quickly formed lakes following heavy rains. Ants floated to land, often 100 feet distant. One colony in mound under home, entered house and constructed nest between wall and refregator. (Hartzog, Dennis, et al.).

CORRECTIONS

CEIR 14(9): 115 - FLOWER FLIES - FLORIDA - Collection of Psilota buccata on February 24, 1919, was made by P. W. Fattig.

LIGHT TRAP COLLECTIONS

	Temperature	Precipitation	Type of trap *	Acronis jaellon (black cutworm)	Capnodesa fumosella (coffee moth)	Chorizagrotis auxiliaris (dry cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (white head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commistalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Pariphronesia variegata (variegated cutworm)	Prodenia ornitogalli (yellow-striped armyworm)	Procagrotis Guinguemaculata (tobacco budworm)	Prosopagrotis sera (armyworm)	Pseudaletia unipuncta (beet armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA Davis 2/29-3/6																2							Misc.
FLORIDA Gainesville 3/3			BL					7									5			5			
GEORGIA Tifton 2/27-3/4			BL						0	0								0	0				
MISSISSIPPI Stoneville 3/1-6			MV	1												1	2						
TEXAS Brownsville 2/27-3/4			5 BL	34			38		355		171	54		1026		17	46			44		28	
SOUTH CAROLINA Charleston 3/2-8		1.55"	BL	2			0		4	0	0	0				1	0	0	0	9		0	

* BL = blacklight; I - incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole - cole crops (crucifers); cott. - cotton; FC = field corn; grain - small grains; leg. - legumes (unspecified); lett. - lettuce; pean. - peanut; pepp. - pepper; pot. = potatoes; SC = sweet corn; sol. - solanaceous plants (unspecified); soy. soybean; TC - truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on December 31, 1963, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

A GIANT AFRICAN SNAIL (Achatina fulica (Bowdich)) once in cargo of conex boxes at Portland, Oregon.

LEEK MOTH (Acrolepia assectella (Zeller)) 8 times in stores on leek; 3 times at New York, New York; 2 times at Charleston, South Carolina; 2 times at Philadelphia, Pennsylvania; and once at Seattle, Washington.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 5 times; 2 times in stores and cargo at Tampa, Florida; 1 time each at Miami, Florida; Brownsville, Texas; and New York, New York.

PEACH FRUIT MOTH (Carposina niponensis (Walsingham)) in stores in apples; 3 times at Seattle, Washington; and one time each at Charleston, South Carolina, and Honolulu, Hawaii.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 5 times in oranges and grapefruit; 2 times in stores at Mobile, Alabama; 2 times each in baggage at Chicago, Illinois, and New York, New York; and 1 time in stores at Dover, Delaware.

ASIATIC RICE BORER (Chilo suppressalis (Walker)) once in rice straw in stores at Philadelphia, Pennsylvania.

OLIVE FRUIT FLY (Dacus oleae (Gmelin)) once in baggage at Chicago, Illinois.

CABBAGE MOTH (Mamestra brassicae (L.)) 7 times in stores; 3 times at New York, New York; one time each at Duluth, Minnesota; Seattle, Washington; Philadelphia, Pennsylvania; and San Juan, Puerto Rico.

AN OLETHREUTID MOTH (Matsumuraeses phaseoli (Mats.)) 4 times in stores at Seattle, Washington.

A STENOMID MOTH (Stenoma catenifer (Walsingham)) once in quarters at Jacksonville, Florida.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 2 times in cargo; one time each at Wilmington, North Carolina, and New Orleans, Louisiana.

KHAPRA BEETLE (Trogoderma granarium Everts) (or probably that species) 20 times in ships' holds, stores, and cargoes of gum karaya, gum arabic, gum kordofan, burlap bags as a commodity or as wrappings around coir yarn, dahl seed, myrobalan, black pepper, and guar gum; 5 times at New York, New York; 6 times at Charleston, South Carolina; 3 times at Philadelphia, Pennsylvania; 3 times at Seattle, Washington; 2 times at Baltimore, Maryland; and 1 time at Portland, Oregon.

GOLDEN NEMATODE (Heterodera rostochiensis (Woll.)) 7 times; 2 times in planes' baggage and 1 time in plane's cargo, at New York International Airport, New York; 1 time each in ships' stores at Honolulu, Hawaii, and at San Diego, California; one time in plane's quarters at Boston, Massachusetts.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 170)

FRUIT INSECTS

POME FRUIT INSECTS

Highlights:

CODLING MOTH was well controlled in most Western States, but a few "hot spots" in Oregon and New Mexico were troublesome. Populations were extremely light and little damage was recorded in the Midwest and New England, but second-brood larvae caused considerable injury to fruits in the Piedmont and northern areas of Virginia. Other lepidopterous pests of pome fruits, such as RED-BANDED LEAF ROLLER, EYE-SPOTTED BUD MOTH, UNSPOTTED TENTIFORM LEAF MINER and APPLE-AND-THORN SKELETONIZER caused some localized damage, but they were not of great importance generally. EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE were both of major importance during the year, and considerable bronzing of leaves occurred in areas of the Midwest, New England, middle and south Atlantic States. Difficulties were experienced in maintaining control of European red mite in the Vincennes area of Indiana since this mite has developed resistance to most of the acaricides labeled for use on apples. European red mite also continued to be the most serious spider mite pest of pear in central Washington, and two-spotted spider mite was a serious threat in Colorado where poor controls were reported by many apple growers using the latest acaricides. Tetranychus mcdanieli was a problem locally in central Washington during August and September, and various species of Tetranychus caused severe damage to foliage of apple trees in orchards not properly treated in northern New Mexico. PEAR RUST MITE and PEAR LEAF BLISTER MITE continued serious on new pear plantings in the Columbia Basin of Washington and caused damage in the Yakima Valley, same State. Pear rust mite constituted a serious problem in Jackson County, Oregon, and APPLE RUST MITE was recorded for the first time in Maine. APHIDS were not of great importance on pomaceous fruit trees in 1963, but some infestations warranted controls. Injury by the PEAR PSYLLA to pear trees and fruit in central Washington was greater than any time since 1957, and resistance continued to spread. APPLE MAGGOT was of some consequence in 1963, with some home orchardists reporting control problems. Few commercial growers were troubled, although control was more difficult since adult emergence extended over a longer period than normal.

CODLING MOTH (Carpocapsa pomonella) emergence was noted May 18 in Marion County, OREGON, May 25 in Jackson County and May 29 in Hood River County. This is considerably later than usual for the State. Poor weather for spraying resulted in some heavier than usual infestations in Hood River County but other areas had little trouble where controls were applied as recommended. Generally light infestations were noted in CALIFORNIA on diciduous fruits; a few medium infestations developed, however. Codling moth was fewer in numbers in MONTANA than it had been in previous years. A similar condition also existed in UTAH where it was below average in numbers or importance. With the prospect of a light crop in COLORADO, it was necessary for apple growers to cut operational costs to break even. The number of spray applications was held to a minimum and many growers omitted one or more of the sprays which were posted. This had been done in past years by a number of the growers and it is considered a calculated-risk program. Such a program requires exact timing of sprays and frequent inspections of the orchard; this has been quite successful in areas where infested and neglected trees have been removed and the overall population is low. It becomes exceedingly more difficult in heavily infested areas. With this shift to fewer sprays, there was an increase in the number of "stings" and "worm" entries but

control was still 94-98 percent effective which offset the cost of additional sprays. The number of sprays posted was reduced in some areas to as few as 4 summer sprays. The pear crop was light in all of western Colorado with an estimated one-half crop; control ranged from fair to good. An estimated 3-4 percent loss was due to "worms." Many orchards in Espanola and Hondo Valleys of NEW MEXICO had extensive damage because of improper timing and inadequate spraying of fruit trees. Extensive damage occurred with considerable quality reduction of fruit. Several reports of difficulty of kill were noted in Velarde area of Rio Arriba County.

Mortality of overwintering codling moth larvae appeared high in KANSAS as indicated by low emergence from banded trees in Doniphan County. Pupae were found by April 25. Infestations throughout the summer were generally light in commercial orchards except one in Sedgwick County which was poorly sprayed following a hailstorm. Unsprayed check trees in an experimental orchard in Doniphan County averaged over 80 percent of the fruit "wormy" at harvest. Some damage was noted in Butler County, NEBRASKA. Codling moth was conspicuously absent in MISSOURI until very late in autumn. A brood which would normally be considered a partial third appeared in early September. This moth was well controlled most of the season in ILLINOIS. A few orchardists permitted the second brood to become numerous enough to cause far too much injury. Populations and injury were extremely light in INDIANA in the Vincennes area of Knox County. This was due to the cold, spring temperatures that retarded first-generation activity but also because of the outstanding insecticides used to prevent injury. The first adults of the season in OHIO occurred at Wooster, Wayne County, May 17-22. Peak of the summer-generation adults emerged the second week of August. Very low temperatures in January and February caused a high mortality to overwintering larvae. Populations were light through July and control was excellent; but when spraying against the summer brood was relaxed, some minor injury occurred. Good statewide control was obtained in MICHIGAN in commercial orchards. The second generation did considerable damage in the southeastern district of MINNESOTA in the second week of August in a few orchards.

Codling moth populations were generally low in New England; they were extremely low in VERMONT and generally very low throughout MAINE even in abandoned or untreated blocks. In the Hudson Valley of NEW YORK populations were so low, due to effective control measures, that no outbreak developed. Several entries were noted in late July in one northern Clinton County orchard.

Codling moth was very difficult to find in commercial apple orchards of NEW JERSEY although observations in unsprayed orchards indicated that populations remained at high levels. Damage to all commercial orchards in Hancock area, Washington County, MARYLAND, was usually light. Heavy numbers were observed in one abandoned orchard. AtnHancock, the first moths emerged May 7, first entries were noted May 20 and second-brood entries were found July 17. Second-brood larvae caused considerable injury to fruits in VIRGINIA in a few orchards in the Piedmont and northern Virginia; it was more prevalent in all orchards in 1963 than it was in 1962.

Codling moth is still present in SOUTH CAROLINA and demonstrated its ability to build up rapidly in this three-generation area.

EYE-SPOTTED BUD MOTH (Spilonota ocellana) populations were generally low throughout MAINE. Some negligible to light summer-generation damage on mature fruit was reported but levels were very low even in abandoned or untreated blocks. This pest was reported down from the usual levels in NEW HAMPSHIRE. In RHODE ISLAND, light infestations were reported on unsprayed trees in Kingston, Washington County, and West Warwick, Kent County, in early May. Eye-spotted bud moth began feeding on opening buds of apples in WISCONSIN in Door County during the second week of May. Some controls were needed despite the high winter mortality. This pest caused many "stings" on apples in MONTANA late in the season.

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) generally spread throughout MAINE on Cortland and other varieties of apples. The very late appearance of second-brood larvae also caused some concern. Injury was reported to be from 2 to 5 percent. Infestations in Maine, although relatively low, appear to be increasing in numbers and localities affected. Populations were generally light and easily controlled in most instances but the rise in incidence would seem to indicate some grower inattention. This leaf roller was down from the usual levels in NEW HAMPSHIRE during the season. Populations were extremely low in VERMONT. Eggs were collected June 5 in RHODE ISLAND on an apple tree at Exeter, Washington County; there was no evidence of an economically important buildup. Heavy flights were noted in NEW YORK in three orchards in the Champlain Valley. This pest was not a problem in NEW JERSEY apple orchards in 1963. Infestations were light in central and northern VIRGINIA and in western MARYLAND commercial orchards.

Red-banded leaf roller caused light damage in some Doniphan County, KANSAS, orchards late in the season because of a delayed harvest. Egg counts were high in all orchards surveyed on April 24 when up to 100 egg masses were found on some trees. Over 100 egg masses were counted on one Ben Davis apple tree in Doniphan County on October 19. This leaf roller moth was present only as a first brood in MISSOURI and it was difficult to find the remainder of the season. In ILLINOIS, it could be found in many orchards throughout the season, but it was generally controlled well. Adults began appearing the first week of May in WISCONSIN. Blacklight trap catches of second-brood adults were made at Gays Mills, Crawford County, on June 25 (about 3 weeks later than in 1962) and the peak was reached on July 4 (a full month later than in 1962). The last moth caught was on July 8. Counts were somewhat higher in southwest Wisconsin than in 1962. A high population of the second-brood larvae occurred in Door County in poorly controlled orchards. No commercial problems were reported in MICHIGAN which makes the 1963 season unique in this respect. This pest was not of major concern to growerssin OHIO and INDIANA during the season.

UNSPOTTED TENTIFORM LEAF MINER (Calisto geminatella) moths were abundant in Doniphan County, KANSAS, orchards by April 24. Nearly 100 percent of the leaves were injured in orchards where control measures were not applied. Young, unsprayed plantings in Sedwick County were severely injured. A LEAF BLOTCH MINER (Lithocolletes blancardella) again reached an infestation level in ILLINOIS where several larvae per leaf were noted in orchards in Calhoun County. It was observed to have spread over the entire county and into neighboring counties. Another leaf blotch miner, L. crataegella, was minor in MAINE in commercial blocks but populations in untreated blocks were well above those of 1961 and 1962. First-generation moths were on the wing and ovipositing by August 10 in central Maine.

Other lepidopterous pests of pome fruit included APPLE-AND-THORN SKELETONIZER (Anthophila pariana) in OREGON where it was very abundant in Linn, Benton and Marion Counties late in the summer. Unsprayed apple orchards had heavy leaf damage. SPOTTED CUTWORM (Amathes c-nigrum) also caused considerable injury to inner leaves of pear trees during June in Jackson County, Oregon. In MARYLAND, GREEN FRUITWORM (Lithophane antennata) caused moderate damage in one orchard at Hancock, Washington County, during May. ELM SPANWORM (Ennomos subsignarius) disappeared from the apple-growing area of GEORGIA with the exception of Rabun County. There were extensive egg populations in Union County in 1963 but either the eggs did not hatch or the larvae succumbed soon after hatching. CANKERWORMS caused light to heavy defoliation of apples in the southeast of NORTH DAKOTA.

EUROPEAN RED MITE (Panonychus ulmi) overwintering egg hatch began in Wooster, OHIO, on April 3. Peak was reached during the last week in April. Cool weather during the spring months caused one of the longest hatching periods on record at Wooster, Wayne County. This spider mite was not so injurious as in 1962 although it is still the major pest of apples. Most growers controlled it effectively through the season but bronzing in some orchards appeared in the

later part of August. In INDIANA, European red mite continued to be the most prevalent species attacking fruit in Vincennes area, Knox County, although early season activity was retarded because of the low spring temperatures. Heavy populations developed by midseason and difficulties were experienced in maintaining control since this mite has developed resistance to most of the acaricides labeled for use on apples. Extremely heavy populations as overwintering eggs were present in most apple orchards in MISSOURI but controls were satisfactory by early season spray. European red mite caused bronzing of apple foliage in KANSAS during the dry, warm spring. In MINNESOTA, this spider mite was a problem on apples until the blooming stage.

European red mite was extremely high in some apple orchards of VERMONT and the warm, dry summer favored buildup in western MASSACHUSETTS. European red mite was the most troublesome pest confronting NEW YORK orchardists in 1963. Populations reached peak activity on apple near mid-July and continued at high levels until early September. This species was the major problem in southern and central NEW JERSEY and it was serious on most apple orchards. Mite control, particularly this species, was the most persistent problem on apples in PENNSYLVANIA. This pest was at low levels in May and June in VIRGINIA but it heavily infested most apple orchards throughout the summer causing much injury. In NORTH CAROLINA, it was the most troublesome pest of apple orchards in the mountain counties where populations were higher than in 1962. European red mite is a major problem on apples in SOUTH CAROLINA.

European red mite continued to be the most serious spider mite pest of pear in central WASHINGTON.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) populations became damaging to apple plantings in the southwest part of MICHIGAN in August. Statewide injury was comparable with other years. This spider mite was abundant in apple orchards of INDIANA, especially in the southern half of the State. Populations were not so heavy as those experienced from 1960 through 1962 because of the cool, wet spring. This species is resistant to most of the labeled acaricides in Indiana. High populations were reached early in the season in ILLINOIS on plants under the trees, and the early drying of these plants and the higher populations caused control problems to appear earlier and be more intense. The weather continued favorable for mites long after apple harvest which gave mites adequate time to build up high populations after spraying had ceased. High carryover into next season can be expected in Illinois on many apple orchards. Two-spotted spider mite was a problem in MINNESOTA on apples until blooming stage and it was observed on apple trees over NORTH DAKOTA. This spider mite caused bronzing during the dry, warm spring in KANSAS but no other damage occurred until late August and September when it again increased in numbers. This species was again a serious threat in COLORADO; poor controls were reported by many apple growers using the latest acaricides. Populations reached highs of 30-40 per leaf in the latter part of July and August but frequent showers aided in bringing them under control. Research on some new acaricides not yet registered showed very promising results. Control was of most concern to Colorado pear growers; poor to fair control was noted with light to moderate injury.

Two-spotted spider mite was locally heavy on pears and apples in CALIFORNIA in a few instances. PACIFIC SPIDER MITE (Tetranychus pacificus) was locally light on pear in Los Angeles County and T. mcdanieli, which is not usual in California, occurred on apples in Yucaipa, San Bernardino County. Two-spotted spider mite ranged 2-30 per unopened bud cluster in Jackson County, OREGON, pear orchards early in March. Summer and fall infestations remained heavy with about the same acaricidal resistance as usual noted. Hot, dry weather during August and September in WASHINGTON was very favorable for rapid development of Tetranychus mcdanieli on apple and other fruit trees in the central area. Tetranychus spp. caused severe damage to foliage of apple trees in orchards not properly treated in the northern counties of NEW MEXICO.

Two-spotted spider mite populations were above normal throughout the season in MAINE. Infestations were well up in trees by late June, a condition not usually found until late July and August, if at all in most seasons. Increase in abundance was undoubtly caused by high temperatures and low rainfall throughout most of July and August. Heavy infestations were observed on Red Delicious apples on September 28. Heavy growth of bindweed in several orchards increased the speed with which T. telarius moved up the trees to low branches. Some bindweed leaves had up to 200 mites in late July and early August. Unspecified SPIDER MITES were widespread and extremely heavy in several commercial apple orchards in the Hancock area, Washington County, MARYLAND. Repeated applications of acaricides were necessary in some orchards to obtain satisfactory control. SCHOENE SPIDER MITE (T. schoenei) was at low levels in May and June in VIRGINIA but it heavily infested most apple orchards throughout the summer causing much injury. Two-spotted spider mite is probably the main spider mite problem in SOUTH CAROLINA where they leave the cover crops and weeds and go to the trees. Spider mites on apple are a problem of the first magnitude in that State.

PEAR RUST MITE (Epitrimerus pyri) and PEAR LEAF BLISTER MITE (Eriophyes pyri) continued to be serious pests of new pear plantings in the Columbia Basin of WASHINGTON. Postharvest treatments were still the most effective control, but some orchards were not sprayed at that time. These eriophyid mites also caused damage in Yakima Valley orchards. Pear rust mite constituted a serious problem in Jackson County, OREGON, fruit orchards throughout the summer; extra spray applications were necessary in many orchards. In CALIFORNIA, pear rust mite was prevalent on pear trees in El Dorado County and pear leaf blister mite was medium locally on Solano County pear trees. Pear leaf blister mite infested untreated fruit trees in the western counties of MONTANA. This eriophyid mite was approximately normal in numbers and/or injury in UTAH and it was extremely light in all the pear orchards of COLORADO where no injury was noted on any of the fruits. The number of cover sprays in Colorado was reduced to as few as 3 in some areas. Pear rust mite was generally abundant on pears throughout western NEW YORK during early June.

APPLE RUST MITE (Aculus schlechtendali) was observed in one apple orchard in MAINE at Winterport, Waldo County. Uniform infestation throughout the orchard would indicate that this eriophyid species had been present for some time, but it did not reach noticeable levels until 1963. A carbamate gave excellent control in the fourth cover. Elsewhere in Maine, an eriophyid mite, believed to be pear leaf blister mite, infested 30-80 percent of the leaves in an orchard in Wilton, Somerset County. Apple rust mite damage caused concern in PENNSYLVANIA in a few orchards in the south central area. Pear rust mite caused injury in a few southwestern MICHIGAN orchards.

APPLE APHID (Aphis pomi) winged migrants were moving about June 9 in most areas of MAINE; colonies were established in the southern area by June 14 and in the central area by June 28. Infestations for the most part, however, remained at low or negligible levels for the remainder of the season. Apple aphid was frequently observed on suckers and terminal growth in VERMONT orchards. This aphid was generally present as small infestations in neglected apple orchards in RHODE ISLAND but it was not a big problem in commercial orchards. Apple aphid was also present in most apple orchards of NEW JERSEY and MARYLAND but it was kept under control with various spray programs. Infestations in VIRGINIA were normal. There were no serious outbreaks of apple aphid in INDIANA in the Vincennes area of Knox County. Aphids, principally apple aphid, became prevalent in WISCONSIN; controls were needed in many orchards. Small to moderate numbers of apple aphid were found in NORTH DAKOTA in the Fargo area, Cass County. Overwintering eggs of this and other species were very abundant on apple trees in MISSOURI. Apple aphid was much in evidence in MONTANA where it was not treated. It was light locally in Santa Cruz County, CALIFORNIA.

ROSY APPLE APHID (Anuraphis rosea) was generally present in neglected apple orchards of RHODE ISLAND as small infestations; it was not a big problem in

commercial orchards. There were no serious infestations observed in NEW JERSEY apple orchards, and infestations were normal in VIRGINIA. This aphid developed in a few orchards in GEORGIA where growers either failed to apply a dormant spray or failed to use a control material during the pink period; some losses were reported. Rosy apple aphid was generally light in OHIO and INDIANA; no trouble was experienced in MISSOURI. In COLORADO, rosy apple aphid was abundant early in the year on apples in Mesa County and in some parts of Delta County, but it was controlled with some of the newer aphicides with little loss of fruit. The loss in Colorado was estimated at 1-2 percent. Rosy apple aphid was more abundant and more damaging in UTAH than normal; however, the statewide numbers and/or injuries were approximately normal for Utah. Populations were up in NEVADA over previous years but with some heavy infestations occurring in late May. Varied populations of rosy apple aphid were noted on apples in Santa Cruz and Fresno Counties, CALIFORNIA.

WOOLLY APPLE APHID (Eriosoma lanigerum) aerial colonies were present in limited outbreaks in the Vincennes area of INDIANA, and this species was unusually heavy on apple trees in healyards in ARKANSAS. It appears to be on the increase in most northern KANSAS orchards, but was about normal for the year in UTAH. Woolly apple aphid infestations were light to heavy and a problem in NEW MEXICO, especially in northern counties, and light to medium populations were present in scattered apple-growing areas of CALIFORNIA. This species persists on pyracantha shrubs in most locations throughout California and thus is present for infesting apples. Newly developing commercial apple orchards in Coosa and Tallapoosa Counties, ALABAMA, experienced somewhat of a mild outbreak and damage by woolly apple aphid.

APHIDS, chiefly APPLE GRAIN APHID (Rhopalosiphum fitchii), were a problem on apples in MINNESOTA until blooming stage. Apple grain aphid was abundant in COLORADO in April and May (20-30 per leaf with Aphis pomi), with controls necessary on bearing and nonbearing apple trees. GREEN PEACH APHID (Myzus persicae) was present on pears in CALIFORNIA in many locations.

PEAR PSYLLA (Psylla pyricola) was more injurious to pear trees and fruit in WASHINGTON and more costly to control than it had been since 1957 in the central area. Phosphate-insecticide resistance continued to spread, chlorinated hydrocarbons did not do so well as hoped and some growers had to use nicotine-oil sprays. However, postharvest sprays reduced overwintering populations to normal levels. Moderate to heavy infestations also occurred in northwestern and southeastern Washington localities. This psyllid was satisfactorily controlled in Jackson and Hood River Counties of OREGON. Some insecticidal resistance apparently developed in the former area. September infestations in Lane County resulted in considerable pear injury. Egg laying was in progress by March 1 and on May 25 the first-generation adults were emerging and depositing eggs. In CALIFORNIA, many light infestations developed on pear trees; this has not become a pest in the southern part of the State. Infestations were found in RHODE ISLAND in Exeter, Washington County, on June 5 and in Scituate, Providence County, on September 20. Pear psylla was more in evidence in 1963 in NEW YORK than in recent years. It is not known whether favorable conditions, poorly applied control measures or resistance were responsible for the increases.

APPLE MEALYBUG (Phenacoccus aceris) population levels continue low in MAINE except for 2 minor "hot spots" in the southern area. No problems are anticipated there if the pest follows its past cyclic patterns. Infestations in VERMONT were completely controlled by air dust program.

SAN JOSE SCALE (Aspidiotus perniciosus) was heavy on apple trees in Warwick, Kent County, RHODE ISLAND, on August 4 and in Sauderstown, Washington County, on September 5. In OREGON, this scale insect was abundant on pear trees in Jackson County; crawlers began emerging June 10. FORBES SCALE (Aspidiotus forbesi) infestations continued to be light in most orchards in INDIANA in the Vincennes area, Knox County; these were much lighter than 12 years ago.

Brood XXIII of PERIODICAL CICADAS, with a 13-year life cycle, emerged in 1963 in INDIANA. The major portion of the adults was comprised of individuals of 2 species, Magicicada tredecim and M. tredecassini; however, a small number of M. tredecula helped comprise the brood. A partial survey of apple and peach orchards where emergence occurred in 14 orchards in Sullivan, Knox, Gibson and Vanderburgh Counties showed that these species covered 400 acres of apples.

APPLE LEAFHOPPER (Empoasca maligna) was approximately normal in numbers and/or injury in UTAH. It was more abundant in PENNSYLVANIA than in 1962, and it caused severe leaf injury in some poorly sprayed orchards. WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) built up on unsprayed apples in RHODE ISLAND in Kingston, Washington County, in mid-June, but not in commercial orchards. BUFFALO TREEHOPPER (Stictocephala bubalus) increased to usual outbreaks in VERMONT. A TREEHOPPER (Stictocephala sp.) was light on pear trees locally in Stanislaus County, CALIFORNIA. PLANT BUGS apparently injured a number of crab apple fruits in ALASKA.

APPLE MAGGOT (Rhagoletis pomonella) problems on apples in MICHIGAN were relatively fewer than those on blueberries. Some late-season injury on processing apples was noted, particularly where growers stopped spraying in mid-August. Adults emerged at Wooster, Wayne County, OHIO, from July 3 to September 3 with a peak the last week of July. There were many reports of injury to home plantings, and few commercial orchards had above average infestations late in the summer. There were no observations of this apple pest in INDIANA in the Knox County area. Apple maggot was again prevalent in ILLINOIS and some commercial orchards were invaded from nearby sources of infestation. This fruit fly was a prime fruit pest because of the continued warm-weather conditions. Adults emerged a week earlier in 1963. Control was excellent in well-maintained commercial orchards with complete spray programs, but it was a problem in backyard orchards. Apple maggot caused damage to apples in Butler County, NEBRASKA.

Apple maggot emergence in MAINE began July 7 in the Monmouth area, Kennebec County; peaked July 19; and reached the 99 percent emergence level by August 12. The last fly recovered was taken on August 29. No control difficulties were encountered in commercial orchards. Initial emergence was a bit later than normal, but peak emergence was reached quickly and the flight slowed down more rapidly than usual. Although it is not unusual, apple maggot adults were seen in CONNECTICUT as late as October 2. The first adults in RHODE ISLAND were noted in Exeter, Washington County, July 2. This is the insect home-fruit growers find the most difficult to control because their zeal for garden work abates at petal fall. Adult emergence in Poughkeepsie, NEW YORK, began June 16 this season and increased steadily after June 18. In Niagara County, 4 males and 2 females were taken from emergence cages June 20. The first emergence in Niagara County occurred June 20 compared with June 26 at the same location in 1962. The first adult taken at Geneva, New York, from cages was on July 1. Apple maggot was more of a problem on apples in 1963 than it was in 1962; several good commercial growers had difficulty controlling it. These "problem" orchards were located in areas where abandoned trees were numerous and served as a source of reinfestation. This fruit fly was a problem in many of the smaller orchards in PENNSYLVANIA where late sprays were omitted. Apple maggot caused minor damage in one SOUTH CAROLINA orchard in September. Young trees bearing for the first time did not receive full spray schedule.

PEAR-SLUG (Caliroa cerasi) was light on pear in Fresno and Siskiyou Counties, CALIFORNIA. Infestations and damage were above normal in NEVADA but slightly less than in 1962. In UTAH, this sawfly was below average in numbers or importance during the season. There was evidence of activity in RHODE ISLAND at Riverside, Providence County, in mid-June but it was apparently lighter than usual. EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) was somewhat more abundant in western MASSACHUSETTS and there was a noticeable increase in eastern Massachusetts but infestations were noneconomic. APPLE SEED CHALCID (Torymus druparum) damage was observed in MINNESOTA in mid-July in a couple of commercial

orchards with proper sanitation and spray programs. Until the summer of 1963, this pest had been of minor economic importance.

PLUM CURCULIO (Conotrachelus nenuphar) was present in extremely small numbers in MISSOURI and posed no problems on apples. This weevil also caused lighter than average injury on apples in Vincennes area, Knox County, INDIANA, even on unsprayed trees. Overwintering adult population seems to have been reduced by extremely low temperatures encountered in January. Some apple orchards in OHIO experienced noticeable but minor amounts of injury; serious injury occurred on unsprayed trees. Plum curculio was very difficult to find in commercial apple orchards of NEW JERSEY although observations in unsprayed orchards indicated that populations remained at high levels. This insect was light again in commercially sprayed orchards in MARYLAND but damaged apples were common on unsprayed trees at several localities over the State. This pest poses a problem to the Bartlett pear industry in SOUTH CAROLINA. Young pears were heavily damaged at Spartanburg, Spartanburg County. Other beetles on apples included JAPANESE BEETLE (Popillia japonica) which was troublesome in a few orchards in OHIO; CALIFORNIA PRIONUS (Prionus californicus) larvae boring in roots of one apple tree in the Yakima Valley of WASHINGTON; and injury by adults of LOCUST LEAF MINER (Xenochalepus dorsalis) to apple foliage in MARYLAND at Hancock, Washington County. This last named leaf beetle caused considerable injury to trees next to wooded areas.

STONE FRUIT INSECTS

Highlights:

PEACH TREE BORER is the number one peach insect problem in Georgia, and it continued to cause considerable damage in many orchards. The borer was also a problem in the sandhills area of North Carolina and in Alabama, but Eastern and Midwestern States reported little damage. LESSER PEACH TREE BORER continued difficult to control in New Jersey and it was a major pest in eastern Virginia and in Michigan. Winter-injured trees were also damaged by lesser peach tree borer in Maryland, Georgia, Indiana and Missouri, as well as other States. ORIENTAL FRUIT MOTH was evident on abandoned or poorly sprayed peach orchards in several States, but was not a problem where controls were applied properly. WHITE PEACH SCALE was severe in several areas of Florida and was troublesome in parts of Georgia, Alabama and Texas, and SAN JOSE SCALE infestations were common in Alabama and sections of Texas and Oregon. Cherry trees were damaged by BLACK CHERRY APHID in the Willamette Valley and in southern Oregon during May and June. PLUM CURCULIO did not appear to be of great importance in 1963.

PEACH TREE BORER (Sanninoidea exitiosa) is the number one peach problem in GEORGIA. Infestations were heavier than in 1962 and it continues to cause considerable damage in many peach orchards. In north central FLORIDA, this pest was present in normal numbers but it was kept in control by the recommended spray program on paaches. There were no marked changes noted in populations in SOUTH CAROLINA, and peach tree borer continued important in ALABAMA. This aegeriid moth continues to be an important pest of peaches in the sandhills area of NORTH CAROLINA. It seriously injured 1,000 two-year-old, budded peaches during the first week of March in Wake County; as many as 13 larvae were recovered from a single small tree. Injury was extremely light in VIRGINIA. Some orchardists reported damage in MARYLAND in the Hancock area, Washington County, where spray programs had been greately reduced. Some increase, partly due to severe winter injury, was noted in PENNSYLVANIA. Peach tree borer was present in NEW

JERSEY in substantial numbers in abandoned and poorly sprayed peach orchards but it was not a problem with commercial growers. Most peach pests were very light in NEW YORK; there were a few light to moderate infestations of peach tree borer in orchards where control was neglected. Adults were observed emerging from a peach tree in Dane County, WISCONSIN, during early June. This was a relatively unimportant pest in INDIANA in the Knox County area.

LESSER PEACH TREE BORER (Synanthedon picitpes) damaged a block of 10-year-old Montmorence cherries in NEW YORK. Some trees failed to leaf in the spring, some declined quickly with mature fruit still hanging. Injury was extensive but there were few cases of complete girdling. This is the first record of severe injury to sour cherries in New York. Evidence indicates that a considerable proportion of larvae attacking cherry trees required 2 years for development and that cherry trees lack recuperative vigor of peach trees and succumb to lighter infestations. Lesser peach tree borer continues to be the most difficult insect to control on peaches in NEW JERSEY. Some increases were noted in PENNSYLVANIA where winter injury occurred. Damage in MARYLAND was confined to a few isolated orchards in Washington County. This aegeriid moth continued to be a major pest in eastern VIRGINIA; medium to heavy infestations were present in many orchards and a number of trees were killed. Infestations were rather heavy in some GEORGIA peach orchards, although the general infestation was somewhat lighter than that of 1962 when there was more winter injury and more dead and dying trees.

Lesser peach tree borer larval injury continued to be a major problem on peach and cherry trees in MICHIGAN. Borers were generally present in most peach orchards in OHIO with heavy infestations noted in a few instances. Lesser peach tree borer caused moderate to severe injury in a large number of orchards in INDIANA, especially where winter injury was present in the Knox County area. This insect caused concern in southeastern MISSOURI by infesting winter-damaged peach trees.

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) infestations in peach were light in Riverside, Santa Clara and Merced Counties, CALIFORNIA. Sanninoidea sp. was a problem on peach trees in NEW MEXICO which were weakened by extremely cold weather during the winter of 1961-62 in Farmington-Aztec area, San Juan County. Good control was obtained on young trees in Valencia County which were found to be heavily infested the summer of 1962.

ORIENTAL FRUIT MOTH (Grapholitha molesta) was generally inconspicuous in RHODE ISLAND but there was some evidence of early feeding in Riverside, Providence County. This olethreutid moth was present in NEW JERSEY in substantial numbers in abandoned or poorly sprayed peach orchards but it was not a problem with commercial growers. It was also a problem in PENNSYLVANIA under similar circumstances in peach orchards. Infested peaches in several areas over MARYLAND were especially heavy on unsprayed trees. Larvae were also responsible for killing the shoots of young peach trees in Charles County. Injury was extremely light in VIRGINIA during 1963. Infestations were somewhat lighter in 1963 than in 1962 or that of an average year in GEORGIA.

Oriental fruit moth was variable over ARKANSAS with light to heavy infestations recorded. It caused little first-generation injury in KANSAS, although terminal injury was very noticeable in the season in some orchards. Injured peach terminals in MISSOURI were noted in unsprayed orchards in the early season but since most of the peach crop froze in May, little fruit damage was recorded in the State. Injury to terminals of peach was heavier than usual in numerous orchards in the Knox County area of INDIANA. No insecticides were applied to the trees; there was no commercial crop of peaches in that area because of the low January temperatures. Terminal injury was very noticeable in OHIO later in the season in some orchards.

Oriental fruit moth populations in OREGON were almost zero; the only known infested area is at Salem in the northwest part of the State. Varied populations

were noted in many separate locations in CALIFORNIA. This pest was prevalent and required more control than it had for several years in that State.

CHERRY FRUITWORM (Grapholitha packardi) damage in OHIO could not be evaluated owing to severe bird damage to cherries. Birds ate both "worms" and cherries and reduced crops in small plantings. In UTAH, this pest was approximately normal in numbers and/or injury.

PEACH TWIG BORER (Anarsia lineatella) sprays were posted early in COLORADO to protect the beneficial predators and parasites that were present in peach orchards. The peach crop was seriously affected by the cold winter temperatures. Emphases were placed on this gelechiid moth, green peach aphid (Myzus persicae) and several species of lygus bugs (Lygus spp.). Peach-producing areas of Montrose, Delta and Garfield Counties had no peach crop at all. Only 1,100 acres out of 4,920 acres had fruit in Mesa County. Insecticides used later in the season kept injury to the fruits at a minimum 3-5 percent. Peach twig borer was more abundant and/or more damaging than normal in UTAH, and was very prevalent in CALIFORNIA where it attacked peach, apricot, nectarine, plum and prune throughout the State.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) attacked seedling plantings of peach in nurseries and orchards in FLORIDA. Borers girdled young plants with killing of 10-15 percent of the peach seedlings in the Gainesville area, Alachua County, and 20-30 percent of the nursery plants in central Florida. Symptoms in the form of yellowing and wilting appeared in May which is too late to do anything about it.

Several other lepidopterous pests of stone fruits were reported in 1963. CARPENTERWORM (Prionoxystus robiniae) was medium on peaches in Selma, Fresno County, CALIFORNIA, and RED-HUMPED CATERPILLAR (Schizura concinna) was a pest on prunes and plums in a few locations in northern parts of that same State. Also in California, AMERICAN PLUM BORER (Euzophera semifuneralis) caused some damage to newly budded deciduous fruit trees in several locations and damaged some fruit. This last named species became a moderate local problem in TEXAS on plum trees in Bastrop County. LEAF CRUMPLER (Acrobasis indiginella) caused concern in Wharton, Kaufman and Dallas Counties, Texas, by boring into plum twigs and destroying terminals, and a LYCAENID BUTTERFLY (Strymon sp.) heavily damaged plums in Caldwell County, Texas.

WHITE PEACH SCALE (Pseudaulacaspis pentagona) infestations were severe in several areas in FLORIDA. Many crawlers and second-stage immatures were present about mid-October. With the accelerated planting of improved peach varieties, a well-planned spray program becomes more urgent to growers if losses are to be minimized from this scale and other insect pests. White peach scale is still quite abundant in GEORGIA peach orchards at Barney, Brooks County, and it has caused considerable damage in some orchards at that locality. Thus far, summer sprays have proved ineffective against this armored scale in Georgia. SAN JOSE SCALE (Aspidiotus perniciosus) and white peach scale were prominent pests to fruit trees in ALABAMA. White peach scale was abundant in TEXAS on peaches in Montgomery County and in lesser numbers in the central, northeast and north central areas of the State. Also in Texas, San Jose scale infestations were common on peach trees in the central and north central areas and appeared heavier than those of 1962. San Jose scale was abundant on peach trees in OREGON in Jackson County. Crawlers began activity June 10. San Jose scale was kept under control in north central FLORIDA by the recommended spray program for peaches.

In CALIFORNIA, several armored scales were recorded on stone fruits. A single new infestation of HALL SCALE (Nilotaspis halli) was found in an isolated area in a canyon ranch in Chico, Butte County; host eradication was complete and no additional infestations were found. OLIVE SCALE (Parlatoria oleae) was heavy locally on Placer County plums. HOWARD SCALE (Aspidiotus howardi) and PUTNAM SCALE (A. ancylus) were light on apricots in the Hemet area, Riverside County.

TERRAPIN SCALE (Lecanium nigrofasciatum) caused heavy injury to 10 peach trees in Baltimore, MARYLAND, during the spring. Infestations of BROWN SOFT SCALE (Coccus hesperidum) occurred on prunes in Santa Clara County, CALIFORNIA.

CATFACING INSECTS attacked peaches and plums in moderate numbers generally throughout TEXAS. In GEORGIA, deformed and gnarled peaches caused by COREID BUGS and STINK BUGS were not abundant in 1963. In some cases, this was due to special sprays in the season for stink bugs and TARNISHED PLANT BUG (Lygus lineolaris). Very extensive catfacing of peaches in Warwick, Kent County, RHODE ISLAND, was probably due to tarnished plant bug.

A LEAFHOPPER (Homalodisca insolita), a proven vector of phony peach disease, was reported farther south in FLORIDA than in any previous year. It is now being found at least as far south as the mouth of the Manatee River in the Bradenton area.

BLACK CHERRY APHID (Myzus cerasi) continued troublesome in OREGON during May and June on cherry trees in the Willamette Valley and in southern Oregon. Spraying and dusting operations were necessary in Marion and Polk Counties to check serious damage. This aphid was prevalent on untreated trees in MONTANA and it was approximately normal in numbers and/or injury in UTAH. In COLORADO, black cherry aphid ranged light to moderate, 4-10 colonies per cherry tree, with controls needed. The severe winter in that State caused a total loss of the sweet cherry crop; the sour cherry crop was not so seriously affected and there were fair crops in most areas. There was a heavy migration of aphids in the fall back to sour cherries in Colorado and controls were applied by most growers. Black cherry aphid threatened cherries in WISCONSIN in Door County early in the season but populations apparently dwindled.

Other APHIDS were not particularly damaging to stone fruits except Anuraphis helichrysi in NEW MEXICO where heavy infestations damaged foliage of plum trees in Rio Arriba and Sandoval Counties. A. helichrysi was also noted on plum trees in yards in Las Cruces area, Dona Ana County. MEALY PLUM APHID (Hyalopterus pruni) was spotty to heavy in Napa and Tehama Counties, CALIFORNIA. Elsewhere in that State, GREEN PEACH APHID (Myzus persicae) was present in many locations. Overwintering counts of green peach aphid in COLORADO showed light to moderate populations which were fairly easy to keep under control where a spray program was used. The estimated loss on peaches was zero to 2 percent in the State.

PERIODICAL CICADAS (Magicicada spp.) covered 225 acres of peaches in INDIANA in Sullivan, Knox, Gibson and Vanderburgh Counties as shown from partial survey of 14 orchards.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) built up to high numbers in COLORADO during August and it became quite a problem; peach growers who used controls reported poor to fair results using the latest acaricides. These results parallel the experience of the pear and apple growers and show the need for more mite studies. Damaging populations increased in prune plantings in southwestern MICHIGAN in August. Statewide injury was comparable with other years.

A SPIDER MITE (Tetranychus mcdanieli) became resistant to 2 specific acaricides on prunes in WASHINGTON where it was particularly difficult to control on this crop in the Yakima area. Hot, dry weather during August and September was very favorable for rapid development and subsequent damage to tree fruits in central Washington. Light, local infestations of PACIFIC SPIDER MITE (T. pacificus) occurred on peaches in Los Angeles County, CALIFORNIA.

EUROPEAN RED MITE (Panonychus ulmi) was a serious problem in some NEW JERSEY peach orchards. In PENNSYLVANIA, control of mites, particularly P. ulmi, was one of the most persistent problems on peaches. European red mite was more abundant on peaches in WASHINGTON than it had been for 10 years.

A FRUIT-TREE MITE (Bryobia rubrioculus) was of little importance in COLORADO on peaches during the 1963 season. Unspecified MITES caused less damage than usual in SOUTH CAROLINA, but were locally heavy. PEACH SILVER MITE (Aculus cornutus) was present on peaches and nectarines in a few CALIFORNIA locations. It caused local bud damage to nectarine trees at blossomtime for the first time in Sacramento, Sacramento County. Two eriophyid mites were reported from MONTANA. Eriophyes sp. appeared on plums and PLUM RUST MITE (Aculus fockeui) was present on both plums and cherries. Injury by A. fockeui was severe on untreated trees.

PLUM CURCULIO (Conotrachelus nenuphar) was present in substantial numbers in abandoned or poorly sprayed NEW JERSEY peach orchards but it was not a problem with commercial growers. This weevil was again light in commercially sprayed orchards of MARYLAND, but damage to peaches was common on unsprayed trees at several localities over the State. Plum curculio was first observed in the sandhills of NORTH CAROLINA on April 1 and second-generation weevils were first observed in that peach-growing area on June 17. Damage to peaches in SOUTH CAROLINA was about the same as in past years, and the pest continued of importance during the year in ALABAMA. Infestations in peaches in GEORGIA were very light throughout the season and it was much less than that of an average year; this condition was also true for the past 3 years. Plum curculio was practically absent in some peach orchards and the general infestation was the lightest reported in more than 40 years. New insecticides and more efficient spraying equipment together with better spray schedules are largely responsible for the reduced infestations in Georgia. Plum curculio was kept under control in FLORIDA by the recommended spray program. The first larvae to leave plum fruit in OHIO occurred at Wooster, Wayne County, on June 18; summer-brood adults began emergence in mid-July. Plum curculio was extremely small in numbers in MISSOURI and posed no problems on peaches. This weevil was heavy on untreated plums in the southern area of LOUISIANA in May; many larvae entered soil to pupate at that time. Plum curculio was light to moderate on peaches in TEXAS; another WEEVIL (Pandeleteius cinereus) caused moderate, local damage to apricots in Mason County area of Texas.

SHOT-HOLE BORER (Scolytus rugulosus) was, as usual, prevalent in devitalized, weak or diseased trees in neglected orchards in GEORGIA; it was also heavy in orchards with dying trees. Injury was more prevalent than usual in peach orchards in INDIANA in the Vincennes area, Knox County, but the degree of injury present is not considered to be of consequence since it was present where trees were weakened by winter injury. A buildup appeared also in NEW MEXICO in peach trees killed by the cold winter of 1961-62 in San Juan County; attack on healthy trees began during the summer months in 1963. Shot-hole borer was more abundant and/or more damaging than normal in UTAH. Spotted infestations were noted on deciduous fruit trees in CALIFORNIA in San Joaquin, Tehama and Fresno Counties.

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) larvae damaged roots of young cherry trees in the Yakima Valley of WASHINGTON, and JAPANESE BEETLE (Popillia japonica) caused severe defoliation on plums and cherries in some areas of OHIO.

An unusual occurence of larvae of CALIFORNIA PRIONUS (Prionus californicus) boring in the roots of one sweet cherry tree in the Yakima Valley of WASHINGTON was noted. A similar record was obtained on sweet cherry at Clarkston, Asotin County, in 1959.

CHERRY FRUIT FLY (Rhagoletis cingulata cingulata) damage in OHIO could not be evaluated owing to severe bird damage to cherries. Birds ate both "worms" and cherries and roduced crops in small plantings. Emergence of the western subspecies, R. c. indifferens in OREGON occurred May 23 at The Dalles, Wasco County; May 27 in Jackson County; and June 1 in the Willamette Valley. Some losses were experienced in Willamette Valley where some sprays were washed off by incessant rains. In MONTANA, this western subspecies was general throughout the cherry-growing areas of the State as was also BLACK CHERRY FRUIT FLY (R. fausta). Both cherry fruit fly and black cherry fruit fly emerged in a normal pattern and they were easily controlled in sprayed plantings in NEW YORK.

Infestations of other cherry pests were quite light in 1963. WALNUT HUSK FLY (Rhagoletis completa) attacked peaches in UTAH at Brigham City, Box Elder County. Numbers and/or injury were approximately normal statewide.

GENERAL DECIDUOUS FRUIT INSECTS

SAN JOSE SCALE (Aspidiotus perniciosus) crawlers have extended over unusually long periods in WASHINGTON because of the cool weather the past two seasons. In CALIFORNIA, general to heavy infestations were noted in deciduous fruit orchards from Kern County northward. San Jose scale appeared to be a minor problem in NEW MEXICO for fruit growers this past season except in orchards where no effort was made to control this scale insect. In several poorly managed orchards in ILLINOIS, San Jose scale became quite numerous and encrusted some branches. It also appeared on the fruit in a few orchards where other pests were well controlled. Infestations continued light in most orchards in INDIANA, much lighter than 12 years ago, but a heavy infestation in a small, isolated orchard near Vincennes, Knox County, has not been readily controlled the past 2 seasons with the control measures generally recommended. Reasons for increase in this orchard are not apparent. The general infestation in GEORGIA was a little heavier than that of the last 4 years during which it was less than that of an average years. The phosphate sprays used during the growing season are keeping this scale insect under control.

OYSTERSHELL SCALE (Lepidosaphes ulmi) is showing some resurgence in scattered locations in MAINE; severe infestations were reported from 2 locations. Oystershell scale was present in MONTANA on untreated trees in Flathead, Lake, Missoula and Ravalli Counties. Varied infestations of OLIVE SCALE (Parlatoria oleae) were noted on deciduous fruits in the San Joaquin Valley of CALIFORNIA. A SOFT SCALE (Lecanium kunoensis) infested some deciduous trees in Paradise, Butte County. This has not become a serious pest of fruit trees in California. GLOBOSE SCALE (Lecanium prunastri) was reported several times in PENNSYLVANIA.

APHIDS in general were present over a longer period than normal in CALIFORNIA and some species persisted all year; deciduous fruit trees were affected. BLACK PEACH APHID (Anuraphis persicaeniger) was below average in numbers or importance in UTAH this season. Heavy populations of APPLE GRAIN APHID (Rhopalosiphum fitchii) were on buds in the spring in OHIO. Winged migrants and nymphs were quite abundant in the autumn. Both ROSY APPLE APHID (Anuraphis rosea) and APPLE APHID (Aphis pomi) were extremely scarce in SOUTH CAROLINA this season.

TARNISHED PLANT BUG (Lygus lineolaris) caused minor injury to fruits in a few VIRGINIA Piedmont orchards. PLANT BUG injury in PENNSYLVANIA was at a minimum. PERIODICAL CIADAS (Magicicada spp.) emerged in great numbers in a restricted area in southeastern MISSOURI near Cape Girardeau. Damage to orchards was minimized by spraying. LEAFHOPPERS developed extensively in GEORGIA in orchards with limited spray programs because of frost damage on young trees. The pest population was greater than had developed in 10 years and caused stunting of trees. Leafhopper damage was severe on buds and unsprayed young trees in SOUTH CAROLINA; damage was noted as early as May 1.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) increased to unusual outbreaks in VERMONT in some areas. Drought conditions in August caused migration from orchard cover to trees. In general, fruit pests were not troublesome in NEW HAMPSHIRE with the exception of locally high populations of two-spotted spider mite which built up rapidly in August. Two-spotted spider mite was not a problem on tree fruits in NEW JERSEY, of minor importance in NEW YORK, and generally very light in OHIO.

EUROPEAN RED MITE (Panonychus ulmi) was the most severe fruit pest in MICHIGAN in 1963. A rather general buildup in fruit areas was evident in early July. Oil sprays used in some orchards in the prebloom period controlled mites until they started to build up again in midsummer. Commercial orchardists obtained reasonably good control with spray programs. European red mite was reasonably well controlled in ILLINOIS where growers have learned control practices. This species caused more damage in MARYLAND than did Tetranychus spp. Females of European red mite were observed in MAINE about June 3 which was about one week earlier than usual. Very few eggs were seen on that date but oviposition increased rapidly by Juen 10. Hot and dry conditions favored mite buildup; peak populations were reached by mid-July as indicated by untreated foliage sampling. Numbers of European red mite began decreasing by mid-July and early August. The normal seasonal cycle in Maine usually finds populations increasing during that period. Five generations, and a partial sixth, were observed; this is one more generation than average. This spider mite caused a severe problem throughout the State where control measures were not tight. Light to medium populations were found in CALIFORNIA on deciduous fruits in Santa Clara, Merced, Eldorado, Sacramento and Placer Counties. SPIDER MITES were not a problem in commercial orchards of RHODE ISLAND, but they could be found without difficulty on unsprayed trees. Spider mites were the major fruit pests in MARYLAND in 1963. Tetranychus spp. complex began to build up in July in MISSOURI and in a few orchards got out of control causing considerable damage; however, most orchardists maintained excellent control. FOUR-SPOTTED SPIDER MITE (Tetranychus canadensis) and T. telarius became problems earlier than usual in ILLINOIS. Varied populations of a FRUIT-TREE MITE (Bryobia rubrioculus) infested fruits from January through June in CALIFORNIA. MITES in GEORGIA were not usually abundant in 1963 and there were very few cases where control measures were reported.

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) larvae began appearing in Door County, WISCONSIN, the second week of May and the first adults began flying in the Gays Mills area, Crawford County, May 29. Peak was reached on June 30 and the last moth was caught in the area on July 8. Populations in Wisconsin were considerably lower than in 1962. Low numbers appeared in many southwestern ILLINOIS orchards but there was little damage. A heavy first brood occurred in late April and early May in MISSOURI but it was easily controlled in commercial orchards.

ORANGE TORTRIX (Argyrotaenia citrana) was a pest of considerable importance in CALIFORNIA on deciduous fruits over the State most of the year. EASTERN TENT CATERPILLAR (Malacosoma americanum) was widely distributed in the central part of TEXAS; infestations were about equal to those of 1962. It was quite destructive in some areas. FALL WEBWORM (Hyphantria cunea) infestations were common in OKLAHOMA but not so damaging as in 1962. In OREGON, infestations were light compared with previous years in the Willamette Valley. Also in Oregon, a GEOMETRID MOTH (Operophtera occidentalis) continues to cause damage to orchards in the spring in the Willamette Valley.

PLUM CURCULIO (Conotrachelus nenuphar) showed no departure from normal levels in MAINE in spite of more than adequate snow cover during the winter of 1962-63. There were no reports of injury in commercial orchards and only 17 percent damage to fruits under a spray program in petal fall and first cover in a trial orchard. Plum curculio was first noted in the Kingston area, Washington County, RHODE ISLAND, May 21. It was present in moderate numbers into early June. Control was good in commercial orchards. Although plum curculio was generally below normal in PENNSYLVANIA, this weevil tended to become a problem in some interplanted orchards. Injury by this species was extremely light in VIRGINIA in 1963. It was well controlled in ILLINOIS most of the season. Plum curculio caused no damage in 1963 in KANSAS.

NUT CROP INSECTS

Highlights:

PECAN NUT CASEBEARER was light in the Southeast; heaviest infestations were reported in the Southwest. HICKORY SHUCKWORM infestations prior to harvest were the highest recorded in Florida for a number of years; and the pest was extremely heavy in Alabama, but it failed to inflict the damage that sometimes develops in that State. Several species of APHIDS and MITES were troublesome to nut orchards in several States, and in some cases treatments were required. WALNUT HUSK FLY was found in Oregon for the first time, and the fly extended its range into some new areas of northern California.

PECAN NUT CASEBEARER (Acrobasis caryae) damage was held to a minimum by home-owners in Carlsbad area, NEW MEXICO, by treating pecan trees at regular intervals. The infestation does not seem to have spread beyond the city limits of Carlsbad, Eddy County. Pecan nut casebearer appeared about 10 days later than expected in TEXAS. First-generation larvae were extremely erratic and most damage was done by the second and third generations. Damage was moderate to heavy throughout the pecan-producing areas of OKLAHOMA; it was active from late April through August. Pecan nut casebearer was light throughout GEORGIA on pecans, and it did not develop to be the serious pest it is capable of being in years of light production in ALABAMA. PECAN LEAF CASEBEARER (Acrobasis juglandis) heavily damaged pecan trees at 2 locations on the lower Eastern Shore of MARYLAND. Infestations in GEORGIA caused little defoliation to the newly emerging leaves.

FILBERTWORM (Melissopus latiferreanus) moths emerged July 6 in Lane County, OREGON. Daily moth counts in blacklight traps were much lower than in 1962. CODLING MOTH (Carpocapsa pomonella) was generally light on walnuts in CALIFORNIA.

HICKORY SHUCKWORM (Laspeyresia caryana) damage was evident in OKLAHOMA; activity began in mid-May. Light to moderate infestations were noted in several central and north central TEXAS counties. Hickory shuckworm infestations prior to harvest were the highest recorded in FLORIDA for a number of years. One report indicated that samples of nuts from 3 different orchards showed averages of 76 to 96 percent of the pecan shucks infested with larvae. Hickory shuckworm was extremely heavy in ALABAMA, but it failed to inflict the damage that sometimes develops.

PECAN BUD MOTH (Gretchena bolliana) was locally heavy on pecans in Houston County, GEORGIA. Pecan bud moth is rated as becoming more of a problem each year in FLORIDA where it feeds on and in young pecan nuts during the latter part of April.

FALL WEBWORM (Hyphantria cunea) defoliated nut and other deciduous trees throughout southern INDIANA; it was the most prevalent of any year previously observed. Numerous trees were stripped of all foliage during August. Infestations in TEXAS were about equal to those of 1962. Average-sized trees in some central counties supported up to 10 webs per tree. Infestations were light to heavy on pecans in GEORGIA with most infestations being light to moderate. Fall webworm was unusually severe in early summer on pecan foliage in FLORIDA.

HICKORY HORNED DEVIL (Citheronia regalis) infestations were light on pecan trees in Bibb County, GEORGIA.

A NOCTUID MOTH (Catocala sp.) generally occurred over the State of TEXAS.

Three lepidopterous pests of nut crops in CALIFORNIA included: PEACH TWIG BORER (Anarsia lineatella) and WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi)

which were pests of almonds (the former species was very prevalent statewide and the latter caused light infestations in Riverside, Santa Clara and Merced Counties); RED-HUMPED CATERPILLAR (Schizura concinna) was a pest of walnuts in a few northern California locations.

PECAN APHIDS were approximately normal in numbers and/or injury in UTAH. Myzocallis caryaefoliae was a problem on peach trees in Dona Ana, Sierra and Eddy Counties, NEW MEXICO, with treatments required in most areas. Monellia sp. was moderate to heavy in late September and August in TEXAS, being considerably more numerous than it was in 1962. Also in Texas, moderate to heavy infestations of BLACK PECAN APHID (Melanocallis caryaefoliae) appeared in late September and August and was more numerous than in 1962. This last named aphid was medium on pecans in Fresno, Fresno County, and locally in Sacramento, Sacramento County, CALIFORNIA. BLACK-MARGINED APHID (Monellia costalis) was a problem on pecan trees in Dona Ana, Sierra and Eddy Counties, NEW MEXICO; treatment was required in most areas. WALNUT APHID (Chromaphis juglandicola) was approximately normal in numbers and/or injury in UTAH. In CALIFORNIA, this species was light to medium on walnuts generally; a few locally heavy populations developed. GREEN PEACH APHID (Myzus persicae) was present on almonds in many California locations. Pecan growers in ALABAMA experienced one of the most serious infestations of black pecan aphid and other yellow aphids during 1963. Many orchards were defoliated prior to the maturity of nuts as a result of aphid damage along with untimely drought.

PECAN PHYLLOXERA (Phylloxera devastatrix) appears to be increasing each year in TEXAS; pecan trees in most areas supported light to heavy infestations.

BROWN SOFT SCALE (Coccus hesperidum) became a moderate problem in some north TEXAS counties.

Various MITES were problems on nut crops in CALIFORNIA. Light to medium infestations of EUROPEAN RED MITE (Panonychus ulmi) were noted in various locations in Santa Clara, Merced, El Dorado, Sacramento and Placer Counties. A FRUIT-TREE MITE (Bryobia rubrioculus) infested almonds and walnuts from January through June throughout northern California. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was locally heavy on walnuts in a few locations and PACIFIC SPIDER MITE (T. pacificus) was medium on almonds in Merced County. PEACH SILVER MITE (Aculus cornutus) was locally heavy on California's almonds late in the year.

CYCLAMEN MITE (Steneotarsonemus pallidus) infested filbert catkins for the first time in Marion County, OREGON. Tips of new catkins turned brown.

MITES caused noticeable defoliation of pecan trees in several areas during late August and early September in TEXAS.

WALNUT HUSK FLY (Rhagoletis completa) was found in OREGON for the first time. Backyard English and black walnuts in Medford, Jackson County; Nyssa, Malheur County; Hermeston and Milton-Freewater, Umatilla County; and Hood River, Hood River County, were infested. Populations were normal in southern CALIFORNIA but this fly extended its range into some new areas in northern California. Infestations in the northern part are established in several counties where damage was prevalent for the first time. Walnut husk fly was approximately normal statewide in UTAH. It attacked walnuts at Brigham City, Box Elder County. Traps in abandonded orchards indicated that a FRUIT FLY (R. sauvis) was abundant in OHIO in 1963 as it was in 1962.

PECAN WEEVIL (Curculio caryae) infestations in ARKANSAS varied from zero to as high as 40 percent of the nuts involved in various locations sampled over the State. In SOUTH CAROLINA, less than the usual amount of pecan weevil damage was reported. This was probably because of an unusually light crop preceding a heavy one. Also in South Carolina, unusually heavy damage by TWIG GIRDLER (Oncideres cingulata) was reported in the lower Coastal Plain and TWIG PRUNER (Elaphidion

villosum) was reported in a number of cases where limbs of heavily loaded pecan trees were breaking. In FLORIDA, a WEEVIL (Conotrachelus aratus) moderately infested bearing pecan orchards in the Monticello area of Jefferson County.

A LEAF BEETLE (Syneta albida) occurred in increasing numbers in filbert orchards of Yamhill County, OREGON. Another leaf beetle (Anomoea mutabilis) was heavy on walnut and pecan trees in Throckmorton County, TEXAS, but no damage was noted. In Garza County, Texas, APPLE TWIG BORER (Amphicerus bicaudatus) damaged pecan twigs by feeding on growth just above the buds and axils.

A SAWFLY (Megaxyela langstoni) caused light, local damage to pecan foliage in De Witt and Travis Counties, TEXAS.

GRAPE INSECTS

GRAPE BERRY MOTH (Paralobesia viteana) larvae caused heavy damage to Concord grapes at Fallston, Harford County, MARYLAND, in September. This olethreutid was of no economic importance in OHIO vineyards; although the first brood was about normal, the second brood failed to develop. Inasmuch as 50 to 100 percent of the grape crop froze in MISSOURI, this pest was of little or no concern although an occasional vineyard which had a few grapes had to be sprayed once or twice to protect the fruit. Grape berry moth was approximately normal in numbers and/or injury in UTAH.

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was slightly more numerous than grape berry moth in PENNSYLVANIA. No grape insects were important problems in the State.

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) was medium to heavy locally in Esconidido, San Diego County, CALIFORNIA; this pest is under eradication in Livermore, Alameda County. Western grape leaf skeletonizer continued to spread in NEVADA into uninfested areas of Las Vegas and North Las Vegas, Clark County. This pest was below average in numbers or importance this season in UTAH.

GRAPE ROOT BORER (Vitacea polistiformis) continues to be a serious pest of grapes in ARKANSAS especially in the northwest area. Some vineyards have been abandoned due to this pest. It also continues destructive in MISSOURI grape roots in all parts of the State where commercial grapes are grown.

A GRAPE TWIG BORER (Psoa quadrisignata) was reared from infested plants in WASHINGTON and LEAD-CABLE BORER (Scobicia declivis) damaged laterals and trunks of European grapes near Sunnyside, Yakima County.

SCARABS (Hoplia spp.) were locally light to heavy in grape plantings in CALIFORNIA at Merced, Mendocino, Fresno and Stanislaus Counties. JAPANESE BEETLE (Popillia japonica) was injurious to grapes in isolated areas only in OHIO. Adults were heavy on grape foliage in sections of eastern Queen Annes County, MARYLAND. A WEEVIL (Ampeloglypterater), which infested grape growth, was destroyed by a freeze on May 23 in OHIO; only trace numbers occurred in the 1963 season. BLACK VINE WEEVIL (Brachyrhinus sulcatus) caused severe loss of grapes in WASHINGTON (up to 3.5 tons per acre) where not controlled. Dry winds in late August caused some grapevines to wilt and digging revealed root injury by larvae. A LEAF BEETLE (Glyptoscelis squamulata) was light to medium on grapes in Coachella, Riverside County, CALIFORNIA. GRAPE FLEA BEETLE (Altica chalybea) was a serious problem on scuppernong grapes in SOUTH CAROLINA and a serious problem in other bunch grape areas of the State.

GRAPE MEALYBUG (Pseudococcus maritimus) populations were much lower in WASHINGTON than they were in 1962. Pseudococcus spp. on grapes in MISSOURI were few in number and caused little concern. COTTONY MAPLE SCALE (Pulvinaria innumerabilis) was a serious pest of Concord grapes in the Yakima Valley of Washington; heaviest infestations were on downwind sides of shade trees around farm houses. First and second instars were found on the upper surfaces of leaves July 24 and caused much honeydew and sooty mold. GRAPE SCALE (Aspidiotus uvae) continued to be a problem in ARKANSAS.

LEAFHOPPERS were a problem on grapes in CALIFORNIA in several locations. Erythroneura spp. were generally light in many grape-growing areas. In NEVADA, Erythroneura spp. populations were again up in Clark and Nye Counties on grapes and equal to the 1961 levels. Heavy populations of a LYGAEID BUG (Nysius sp.) invaded grape vineyards in Stanislaus and San Diego Counties, CALIFORNIA, in local areas.

A SPIDER MITE (Eotetranychus willamettei) ranged light to medium on grapes in Amador County, CALIFORNIA. Elsewhere in that State, PACIFIC SPIDER MITE (Tetranychus pacificus) was medium on grapes in Merced County and GRAPE ERINEUM MITE (Eriophyes vitis) was medium on grapevines in Fresno County.

A GALL MIDGE (Lasioptera vitis) was largely killed in infested grape growth by a freeze on May 23 in OHIO; only trace numbers occurred during the season. VINEGAR FLIES (Drosophila spp.) did not produce heavy populations in grapes in Ohio. FRUIT FLIES were not nearly so numerous on grapes in SOUTH CAROLINA as in past years. A THRIPS (Drepanothrips reuteri) was light on grape plantings in Stanislaus County, CALIFORNIA.

GRASSHOPPERS caused some damage to grapevines in CALIFORNIA but all infestations were light where damage occurred.

BLUEBERRY, CRANBERRY, AND CURRANT INSECTS

Highlights:

BLUEBERRY MAGGOT injury was much more severe in Michigan than in recent years and it was more prevalent in New Jersey. Infestations of BLUEBERRY THRIPS continued to increase in size and number in the eastern blueberry-producing areas of Maine. CURRANT STEM GIRDLER was recorded in Washington for the first time. It was not previously known west of Montana in the United States.

BLUEBERRY MAGGOT (Rhagoletis pomonella) injury was much more severe in MICHIGAN than it was during other recent years. Timing of pesticide applications in relation to the residual action of the materials used and frequent rains during the critical treatment periods complicated controls. Blueberry maggot was more prevalent on blueberries in NEW JERSEY also. Emergence started on June 22 in MAINE in the Jonesboro area, Washington County. It reached a peak by June 26. The 99-percent level was achieved on July 10 and the last fly was taken on July 23. Only 2 adults (both male) were taken after July 16; for practical purposes, emergence was completed on that date.

One moderate infestation of a GALL MIDGE (Contarinia vaccinii) was observed in Orland, Hancock County, MAINE, where no blueberry thrips (Franklinella vaccinii) were taken. Populations of this gall midge usually are drastically reduced when new-burned fields are dusted for thrips control.

CURRANT BORER (Ramosia tipuliformis) emerged May 20 in the Yakima Valley of WASHGINTON and damaged 100-120 acres of currants. DOGWOOD BORER (Thamnosphecia scitula) was determined as the clearwing moth which was causing injury to blueberries in 1962 in MICHIGAN (cf. CEIR 13(10):207). Plantings in Van Buren, Allegan, Ottawa and Muskegon Counties were found infested in 1963. GOOSEBERRY FRUITWORM (Zophodia convolutella) was approximately normal in numbers and/or injury in UTAH. A GEOMETRID MOTH (Itame argillacearia) outbreak caused heavy defoliation in NEW HAMPSHIRE in over 40 acres of lowbush blueberries in Hillsborough County. VARIEGATED CUTWORM (Peridroma saucia) damaged currant plants the night of June 12 in Narragansett, Washington County, RHODE ISLAND, and a BLUEBERRY TIP BORER (Hendecaneura shawiana) infestations were prevalent on unsprayed plantings in OHIO.

CURRANT APHID (Capitophorus ribis) was approximately normal in numbers and/or injury in UTAH; and CURRANT APHIDS were numerous on cultivated currants near Seward, ALASKA, where they distorted the foliage severely. Nymphs of undetermined SPITTLEBUGS were common on blueberries in RHODE ISLAND at Richmond, Washington County, and Coventry, Kent County, in early July.

WESTERN RASPBERRY FRUITWORM (Byturus bakeri) was feeding on blossoms and buds of thimbleberry in northern Washington County, OREGON, in large numbers. This beetle has been collected for several years in northwestern counties but so far it has not infested commercial cranberries. PLUM CURCULIO (Conotrachelus nenuphar) was an important insect on blueberries in some areas of NORTH CAROLINA.

BLUEBERRY THRIPS (Franklinella vaccinii) infestations continue to increase in size and number in the eastern blueberry-producing areas of MAINE. As noted in 1962, this pest is becoming much more common east of the Penobscot River (Hancock and Washington Counties), whereas in the past it was usually troublesome in Waldo, Knox and Lincoln Counties. Several very heavy infestations were reported from the two eastern counties and some difficulty in achieving control was also noted.

CURRANT STEM GIRDLER (Janus intiger) was not previously known west of Montana. It had been taken in a currant planting near Grandview, Yakima County, WASHINGTON, in the lower Yakima Valley on May 24.

A CHALCID (Hemadas nubilipennis) was near normal levels in MAINE. Extremely high populations of MITES were observed on small fruits in MINNESOTA. In one case, a formerly effective acaricide of the chlorinated hydorcarbon group did not provide control of mites while a subsequent change to an organophosphate resulted in effective control.

AVOCADO INSECTS

Pests of avocado in CALIFORNIA included OMNIVORUS LOOPER (Sabulodes caberata) which was heavy in avocado trees in Los Angeles County; ORANGE TORTRIX (Argyrotaenia citrana) was a pest of considerable importance over the State most of the year; light to medium infestations of a LEAF ROLLER MOTH (Amorbia essigana) were noted locally in plantings in Orange and Los Angeles Counties; and another LEAF ROLLER MOTH (Platynota stultana) was a pest in a few locations.

An ARMORED SCALE (Aspidiotus lataniae) was light on avocado in San Luis Obispo County. Varying populations were noted in southern California also. THRIPS were prevalent statewide in California and avocados were affected heavily. AVOCADO BROWN MITE (Oligonychus punicae) was generally light on avocado in California; a few medium, local infestations were noted from June on to October. Biological control varied and treatments were applied when beneficial insects were unable to keep populations down.

MITES were prevalent on avocado in FLORIDA; WHITEFLIES and unspecified BAGWORMS were serious in midsummer in the Pahokee area, Palm Beach County, on avocado.

OLIVE INSECTS

BLACK SCALE (Saissetia oleae) was locally heavy on olive seedlings in Tehama County, CALIFORNIA; biological control is an important factor. OLIVE SCALE (Parlatoria oleae) varied on olives in the San Joaquin Valley of California and light, local infestations were noted on olives in Glenn County.

CITRUS INSECTS

Highlights:

CITRUS RUST MITE was the major problem in Florida citrus groves. High populations developed in July and continued high through the remainder of the year. Moderate to heavy infestations of this mite also occurred in Cameron County, Texas, and some areas required control measures. Record high levels of TEXAS CITRUS MITE were recorded during May and June in Florida, and some orchards maintained high levels during the fall. This mite was especially numerous in cold-damaged groves. MEDITERRANEAN FRUIT FLY invaded Florida for the fourth time during 1963. It was discovered in June near the Miami International Airport. An aggregate of 72,565 acres were treated, with the last application being made in October. Following a period of 90 fly-free days, State and Federal regulations were removed. ORANGE DOG larvae became a serious problem on Arizona citrus during the fall months, and WHITEFLIES reached the highest population level in 12 years of record during December in Florida. A number of SCALE INSECTS were reported from citrus in California, Texas and Florida. Some individual species warranted attention.

GLOVER SCALE (Lepidosaphes gloverii) was above normal on FLORIDA citrus groves which had less than 50 percent freeze defoliation due to the severe freeze in December, 1962. Populations were reduced greatly on freeze-damaged groves at the first of the year. Glover scale increased to above average levels in both damaged and undamaged groves in the second quarter and it continued above average for the remainder of the year.

BROWN SOFT SCALE (Coccus hesperidum) infestations occurred on citrus in San Joaquin and Orange Counties, CALIFORNIA. Infestations in TEXAS were of such a nature as to warrant control on citrus in Cameron and Hidlago Counties. This soft scale was above normal in FLORIDA citrus but unimportant during the first part of the year.

CITRICOLA SCALE (Coccus pseudomagnoliarum) was light on citrus in Fresno, Fresno County, CALIFORNIA.

BLACK SCALE (Saissetia oleae) populations were greatly reduced by leaf drop following the severe December, 1962, freeze in FLORIDA. Only 3 percent of the defoliated groves showed a few scales in March. This soft scale increased rapidly in May and June on a few undamaged groves. Black scale was generally light on citrus in southern CALIFORNIA where biological control was an important factor.

FLORIDA WAX SCALE (Ceroplastes floridensis) became unusually abundant in 2 FLORIDA citrus groves but it did no damage.

PURPLE SCALE (Lepidosaphes beckii) was above average in abundance in FLORIDA groves with less than 50 percent defoliation due to the freeze. Populations dropped entirely with the leaves and fruit on freeze-damaged groves early in the year. This armored scale increased in east coast and south central goves in September. It continued to be more widespread than normal at the end of the year. Trace to medium infestations were noted on CALIFORNIA citrus. Purple scale was more prevalent in groves that were frozen during the winter of 1962. Parasites were scarce in Orange County. In TEXAS, moderate infestations occurred on citrus in the Rio Grande Valley.

CHAFF SCALE (Parlatoria pergandii) was light to medium in a limited number of CALIFORNIA citrus groves in Escondido, San Diego County. It was above normal abundance in FLORIDA on undamaged citrus following the severe freeze but populations were greatly reduced by leaf and fruit drop on damaged groves. Only 3 percent of the defoliated trees showed a few scales on new growth in March. This armored scale increased in both damaged and undamaged groves by the second quarter of the year. In undamaged groves, chaff scale infested 38 percent of the groves during that period. Most infestations remained light to moderate because of the high degree of parasitism through the remainder of the year.

The entire populations of YELLOW SCALE (Aonidiella citrina) fell with the leaves and fruit in FLORIDA following the severe freeze in December, 1962, on damaged trees. It increased to normal numbers in June, however. It continued higher than normal until October when record high levels of 39 percent of the groves were infested and were in the moderate to heavy category. This scale insect declined in November and December despite low and decreasing degree of parasitism. Yellow scale was light to medium in Tulare County, CALIFORNIA.

CALIFORNIA RED SCALE (Aonidiella aurantii) was widespread on citrus in CALIFORNIA. Biological control was an important check.

FLORIDA RED SCALE (Chrysomphalus aonidum) entire population fell with the leaves and fruit damaged in FLORIDA groves following the severe freeze in December, 1962. In undamaged groves, this scale insect dropped to the lowest level of 13 years of record during the second quarter of the year and remained at this record low level for the remainder of 1963.

CAMPHOR SCALE (Pseudaonidia duplex) was found as light infestations in 2 groves near De Land, FLORIDA. This armored scale is seldom seen in commercial groves.

Two ARMORED SCALES (Unaspis citri and Pinnaspis strachani) were above normal levels in FLORIDA. U. citri increased on trees defoliated by the severe freeze and became injurious during the second quarter of the year. It was also more prevalent than normal during July to September. P. strachani developed moderately high infestations on a few east coast groves during May and June on undamaged trees. It continued to be more widespread than average in the last quarter of the year but heavy infestations were scattered and parasitism kept it under control.

COTTONY-CUSHION SCALE (Icerya purchasi) was light on citrus in San Diego and Fresno Counties, CALIFORNIA. This margarodid scale is usually held in check by vedalia (Rodolia cardinalis). Cottony-cushion scale occurred on citrus trees in the Rio Grande Valley of TEXAS in moderate numbers.

CITRUS MEALYBUG (Pseudococcus citri) was medium locally in San Diego County, CALIFORNIA, and light in coastal Santa Barbara County. LONG-TAILED MEALYBUG (P. adonidum) was light on citrus in Capistrano, Orange County, California. MEALYBUGS were more abundant than usual in undamaged FLORIDA citrus groves during May to September but little damage occurred.

APHID infestations were of little concern on undamaged citrus groves in FLORIDA during the first of the year but they reached the normal annual peak of abundance in mid-April on freeze-defoliated trees. Instead of the usual May decrease, aphids increased to record high levels and caused much dwarfing and curling of new foliage of freeze-damaged trees. Decline to noneconomic levels occurred in late May but populations remained above normal through June. BLACK CITRUS APHID (Toxoptera aurantii) was heavy on citrus in Yolo County, CALIFORNIA, and a few other locations in the State. This aphid occurred throughout the year on various hosts in 1963. MELON APHID (Aphis gossypii) was present on southern California citrus early in the year.

WHITEFLIES were above normal in undamaged groves of FLORIDA during the first quarter of the year and more abundant than usual in May and June. Immature whiteflies were abnormally abundant and widespread in December when they reached the highest population in 12 years of record. Adults and eggs were near normal levels at the same time.

CITRUS RUST MITE (Phyllocoptruta oleivora) was collected for the first time in ARIZONA at Yuma, Yuma County, on lemons. Because of the normally dry conditions, it is doubtful that this eriophyid mite will become well established. Moderate to heavy infestations occurred in Cameron County, TEXAS, and some areas required control measures. Citrus rust mite remained active on frozen fruit following the severe freeze in FLORIDA. It was scarce on new growth in March but attained normal abundance in May and reached injurous level in June. Citrus rust mite was the major problem in citrus groves when high populations, continuing high, developed in July through the end of the year. Citrus rust mite was generally light or spotty on CALIFORNIA citrus in Santa Barbara and San Diego Counties.

CITRUS BUD MITE (Aceria sheldoni) was present as light infestations on citrus in Santa Barbara, San Diego and Ventura Counties, CALIFORNIA.

A PINK CITRUS MITE (Aculus pelekassi) was discovered in Pasco County, FLORIDA, during 1963. It had been previously known in 13 other counties.

CITRUS FLAT MITE (Brevipalpus lewisi) was fairly heavy on CALIFORNIA citrus during September in Imperial County. Scar damage by this false spider mite was abundant and general in ARIZONA. Tangarines in Yuma, Yuma County, were particularly susceptible.

TEXAS CITRUS MITE (Eutetranychus banksi) was above normal in undamaged citrus groves of FLORIDA during the first of the year and reached a record high level in May and still higher level in June when 68 percent of the undamaged groves had moderate to heavy infestations. Populations in cold-damaged groves increased by July and those in undamaged groves decreased. The decline in August resulted in moderately low levels which at its lowest point was still higher than in any other prior September. About 22 percent of the groves had infestations in the autumn which was a record high for that time of the year. This spider mite was especially numerous in cold-damaged groves.

YUMA SPIDER MITE (Eotetranychus yumensis) was light on citrus in Coachella Valley of CALIFORNIA.

CITRUS RED MITE (Panonychus citri) increased slowly about midyear in FLORIDA and never attained the normally high summer populations. The scattered, heavy infestations that occurred were mainly in cold-damaged groves. In CALIFORNIA, light to medium infestations were noted in a few locations. This spider mite has extended its range within the State over the past years. EUROPEAN RED MITE (P. ulmi) was heavy locally on citrus in Butte County, California.

SPIDER MITES occurred in varying numbers on TEXAS citrus in the Rio Grande Valley. In citrus groves defoliated by the severe freeze in FLORIDA in December, 1962, MITES were removed by the mechanical loss of leaves. Mites were not directly

harmed by the cold and a few persisted for a few days on green twigs. All mite species were very scarce on the new flush of growth in March.

By continuing an extensive trapping program, Federal and State personnel discovered MEDITERRANEAN FRUIT FLY (Ceratitis capitata) shortly after it entered FLORIDA for the third time in June of 1962. This infestation was successfully eliminated in April, 1963. Only 723,000 aggregate acres required treatment in Broward, Dade and Palm Beach Counties. A fourth invasion of this pest was discovered in June, 1963, near the Miami International Airport, Dade County. One additional male was found on August 28 at El Portal also near Miami. Prompt Federal and State action eradicated this infestation in 5 months by treating an aggregate of 72,565 acres. The last application was made in October. Following a period of 90 fly-free days, State and Federal regulations were removed. Plans are now underway to continue the detection program which gave the State and Federal personnel a distinct advantage in eradication of these last two invasions of Mediterranean fruit fly.

A female MEXICAN FRUIT FLY (Anastrepha ludens) was recovered from a McPhail trap in Nogales, Santa Cruz County, ARIZONA, on July 9, 1963. This is the first record of this fruit fly in the State. Continued recovery of both male and female flies occurred during the summer and fall. No other stages of this pest were found. A single male Mexican fruit fly was trapped on the CALIFORNIA side of the United States-Mexican border during 1963. Trapping continued during the year with negative results. Bait sprays were applied at regular intervals.

An extensive trapping program for foreign fruit flies, including ORIENTAL FRUIT FLY (Dacus dorsalis), was conducted throughout CALIFORNIA with negative results.

ORANGE-DOG (Papilio cresphontes) larvae became a serious problem on citrus during the fall months in ARIZONA. The heaviest infestations were found in Maricopa, Pinal and Yuma Counties.

Although larvae of SUNFLOWER MOTH (Homoeosoma electellum) have been found in commercial sunflowers, this phycitid moth was detected on citrus in ARIZONA for the first time. Infestations were found on oranges in Yuma area, Yuma County.

ORANGE TORTRIX (Argyrotaenia citrina) was a pest of considerable importance on oranges over CALIFORNIA most of the year. A LEAF ROLLER MOTH (Platynota stultana) damaged citrus in many areas of ARIZONA, but particularly in Yuma County. Concentrated control efforts were necessary in some areas.

CITRUS THRIPS (Scirtothrips citri) was abundant in the fruit-growing areas of Maricopa and Yuma Counties, ARIZONA. Light to medium infestations were found in the citrus-growing areas of CALIFORNIA; THRIPS in general were very prevalent statewide with citrus and avocados most affected.

KATYDIDS damaged citrus during May and June in Riverside and Los Angeles Counties, CALIFORNIA, and GRASSHOPPERS were more common than average in FLORIDA citrus groves but they have been of little concern.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 12 March 20, 1964

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C77
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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 March 20, 1964 Number 12

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

PEA APHID building up on alfalfa in areas of California, Arizona and New Mexico (p. 209). Larvae of a WEEVIL (Hypera brunneipennis) present in many fields of alfalfa in Imperial Valley of California and continue damaging on Yuma Mesa of Arizona. (p. 210).

GLOVER SCALE, CHAFF SCALE and YELLOW SCALE populations at record high levels for February on Florida citrus. (p. 211). CITRUS RED MITE populations sufficient to require treatment on citrus in Coachella Valley, Riverside County, California. (p. 212). BEET ARMYWORM, BLACK CUTWORM and DARKLING BEETLES medium to heavy on young sugar beets in Hungtinton Beach, Orange County, California. (p. 212). POPLAR PETIOLE GALL APHID light to heavy on cabbage and unspecified aphids moderate to heavy and requiring controls on tomatoes in Hidalgo County, Texas. (p. 213).

Two cases of myiasis caused by SCREW-WORM recently disclosed in Texas. (p. 215). BOXELDER BUG a nuisance in homes in Delaware, Maryland, Virginia, North Carolina, Michigan and Utah. (p. 216).

Two KHAPRA BEETLE infestations found in Yuma County, Arizona. (p. 217).

SOME FIRST RECORDS OF THE SEASON

CEREAL LEAF BEETLE adults in Berrien County, Michigan; PEA APHID in Washington County, Arkansas; ALFALFA WEEVIL larvae in Georgia; ALFALFA CATERPILLAR in south central Oklahoma; COMMON CATTLE GRUB adults in Payne County, Oklahoma; HORN FLY adults in Payne County, Oklahoma; and first instars of a MOSQUITO (Aedes canadensis) in Prince Georges County, Maryland.

FORECASTS

Light population of GREEN PEACH APHID possible in Palisade and Vineland area of Mesa County, Colorado. (p. 211). BEET LEAFHOPPER movement to cultivated districts of central Arizona, southeastern California, southern Nevada, southern and eastern Utah and western Colorado expected to be heavy, and movement into northern Utah and western Nevada expected to be moderate to heavy. (p. 212). Light infestation of POTATO PSYLLID indicated this season in spring breeding areas of Arizona and California. (p. 212). TENT CATERPILLAR populations in Travis County, Texas, may be as high as 1963's severe outbreak. (p. 213).

DETECTION

HUMAN FLEA (Pulex irritans) found in Churchill County, Nevada; first ARS record for State. (p. 216). New county records of significance were CHAFF SCALE (Parlatoria pergandii) in Sutter County, California (p. 211), and a PSYCHID MOTH (Apterona crenulella) in Ormsby County, Nevada (p. 214).

SPECIAL REPORTS

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1964. (p. 212).

(Continued on page 208).

Second Beet Leafhopper Survey in Desert Areas of Central Arizona, Southeastern California and Southern Nevada and Utah. (p. 212).

Status of the Screw-worm in the Southwest. (p. 215).

Summary of Insect Conditions in Hawaii - 1963. (p. 220).

Summary of Insect Conditions in the United States - 1963
Tobacco Insects. (p. 224).
Cotton Insects. (p. 226).

Reports in this issue are for week ending March 13 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1964

The Weather Bureau's 30-day outlook for mid-March to mid-April calls for temperatures to average below seasonal normals in a large area extending from the lower Mississippi Valley through the Southern Plains into the Great Basin. Above normal averages are in prospect for the Northeast, Great Lakes and Northern Plains, and also in southern portions of Florida and California. In regions not specified, near normal temperatures are indicated.

Precipitation is expected to exceed normal between the Mississippi Valley and Appalachian Mountains and also in the central Rocky Mountain States. Subnormal amounts are predicted for the Carolina coast, Northern Plains, and Far Southwest. In the remainder of the Nation precipitation should be about normal.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING MARCH 16

A frontal system extending from Texas to New England at the beginning of the period continued across the eastern United States on the 9th and 10th, and was responsible for widespread precipitation, heavy snowfall, and high winds in the Northeast, flood producing rains in the Ohio Valley, and tornadoes in Mississippi, Tennessee, and Alabama.

Heavy rainfall totaling up to 7 inches or more over the Ohio Valley resulted in near record flooding and extensive damage in the Ohio River Basin. Louisville, Kentucky, on the 9th and 10th measured its heaviest 24-hour rainfall in its history, 6.97 inches. Owing to this heavy rainfall, total precipitation for March 1964 already exceeds previous records for March at numerous stations. To date, Cincinnati, Ohio, has recorded 11 inches and Columbus, Ohio, nearly 9 inches.

(Continued on page 234).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light in small grain in northern Eddy County; ranged 2-10 per linear foot. (N.M. Coop. Rpt.). OKLAHOMA - Reports statewide indicate populations continue at noneconomic level; counts well below 10 per linear foot, except in 1 location in Mayes County where 20 per linear foot on oats noted. Many checks made in south central, southwest and west central areas negative; averages fewer than 5 per linear foot. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - TEXAS - Heavy, localized populations reported on wheat and oats in Brazos County. (Randolph). OKLAHOMA - Populations continue at very low levels statewide; fewer than 5 per linear foot. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Continues at very low levels; fewer than 5 per linear foot in all areas. (Okla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Light to moderate on leaves of corn at Plantation, Broward County (McLean, Clinton); light on corn ears at Goulds, Dade County (Knowles, Brown, Mar. 4).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Common rye, with seed heads well formed, yieled 13 adults per 100 sweeps at Gainesville, Alachua County. (Mead).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - First adult activity noted March 4 when very few beetles swept from quackgrass as temperatures rose into 50's and above. Collection made in heavy infestation area near Galien, Berrien County. (Ruppel, Remington).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ALABAMA - Of 28 girdled stalks examined in Fayette County, 7 larvae survived in one field where land is low and waterlogged through most of winter months. Other larvae dead but cause unknown. No pupation of borers occurred. Four stalks recently girdled, with larvae not present; apparently taken by birds. (Eden et al.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Only small percent of live larvae noted in cornfield in Fayette County; numerous old infested stalks examined. No pupation noted. (Eden et al.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Only light, scattered infestations noted in localized south central, southwest and west central areas. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - None reported to date, but March 14 is average first occurrence based on records of past 4 years. (Okla. Coop. Sur.).

GRANULATE CUTWORM (Feltia subterranea) - TEXAS - Heavy in St. Augustine grass lawns in localized areas of Brazos County. (Randolph).

SOD WEBWORMS (Crambus spp.) - COLORADO - Collected at Greeley, Weld County; caused noticeable damage. (Simpson).

PEA APHID (Acyrthosiphon pisum) - CALIFORNIA - Building up rapidly in alfalfa 4-8 inches high following pasturing or cutting in Imperial County. (C. A. Downing). ARIZONA - Some increase noted in alfalfa in Yuma, Pinal and Maricopa Counties; ranged 40-50 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Apparently building up in alfalfa in Eddy County; no noticeable damage. (N.M. Coop. Rpt.). OKLAHOMA - Occasional specimen noted in vetch in Garvin County; negative in other south central locations on alfalfa. (Okla. Coop. Sur.). ARKANSAS - First of season found on vetch in Washington County, northwest. (Ark. Ins. Sur.). FLORIDA Ranged 1,100-1,300 nymphs and adults in 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

LEAFHOPPERS - ALABAMA - Several species active in any and all grass stubble along roads, drives and fence lines throughout State. (McQueen). FLORIDA - Seven adult Agallia constricta collected on 200 sweeps of unsprayed Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

SPOTTED ALFALFA APHID (Therioaphis maculata) - CALIFORNIA - Numerous in some non-resistant alfalfa in Imperial County. (C. A. Downing). ARIZONA - Populations not increased to any degree in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). OKLAHOMA - Checks in south central alfalfa negative. (Okla. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts on alfalfa ranged 17-20 per 100 sweeps in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). FLORIDA - Nine adults collected from 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA WEEVIL (Hypera postica) - GEORGIA - First instars found in 3 fields in northeast; several fields examined not infested. (Johnson). Larvae taken from alfalfa at Tifton, Tift County, since January 7. (Byers).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 1 per sweep in much of Yuma County, but infestations much heavier on Yuma Mesa with counts of 2-3 per terminal. Larvae ranged 20-25 per 100 sweeps in infested fields in Maricopa County. Many parasitized larvae found in both counties. (Ariz. Coop. Sur.). CALIFORNIA - Populations in Imperial Valley, Imperial County, generally light on alfalfa; larvae present in many fields. (C. A. Downing). Larvae heavy on alfalfa leaves in Escondido, San Diego County. (Cal. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Adults becoming active in alfalfa and small grains in south central and southwest areas. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - FLORIDA - Unsprayed Hairy Peruvian alfalfa yielded 58 larvae in 200 sweeps at Gainesville, Alachua County. (Mead).

ALFALFA CATERPILLAR (Colias eurytheme) - OKLAHOMA - Single specimen collected on alfalfa in Bryan County (south central). This is first record of season and well ahead of average first occurrence date of April 19 of past 6 years. (Okla. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Heavy on lower leaves of alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

AMERICAN GRASSHOPPER (Schistocerca americana) - ALABAMA - Numerous adults observed in broomsedge grass and scattered upland forest in Henry and Lee Counties. (McQueen).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - CALIFORNIA - Larvae medium in bark of apple trees in San Jose, Santa Clara County. (Cal. Coop. Rpt).

GRAPE ROOT BORER (Vitacea polistiformis) - ARKANSAS - Continues a problem in northwest; control measure research underway. (Ark. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Larvae appearing on peach trees in Travis County. (Cook, Newton, Meisch).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Damaging young fruit trees in Willow Creek, Humboldt County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE - TEXAS - Undetermined species damaged fruit and pecan trees in Midland County. (Green).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Overwintering egg counts indicate decrease over 1963; preliminary counts show 21.2 percent of the number compared with 1963. Possibly a light population in Palisade and Vineland, Mesa County. Counts parallel 1960 counts, which were light. (Bulla). FLORIDA - Light on mango at Goulds (Mar. 3) and Homestead (Mar. 5), Dade County (Knowles); this is new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.).

Citrus Insect Situation in Florida - End of February - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 59 percent of groves (norm 61 percent); 38 percent economic (norm 37 percent). Citrus rust mite on fruit infested 39 percent of groves (norm 49 percent); 20 percent economic (norm 30 percent). Population near normal, moderate level on leaves and below normal on fruit. Little change expected. Highest districts west, north, and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 35 percent of groves (norm 19 percent); 13 percent economic (norm 6 percent). Population at low level but higher than in prior years; decrease expected. Highest districts west and east; lowest district north. CITRUS RED MITE (Panonychus citri) infested 43 percent of groves (norm 60 percent); 18 percent economic (norm 32 percent). Abnormally low population level prevails and only a few scattered groves will have important infestations. Highest districts west and north. PURPLE SCALE (Lepidosaphes beckii) infested 76 percent of groves (norm 80 percent); 6 percent economic (norm 15 percent). Population below average; no heavy infestations expected. GLOVER SCALE (L. gloverii) infested 75 percent of groves (norm 23 percent); 11 percent economic (norm 1 percent). Population at record high for February; a few heavy infestations expected. Highest districts east, south and central. CHAFF SCALE (Parlatoria pergandii) infested 75 percent of groves (norm 41 percent); 16 percent economic (norm 1 percent). Population at record high for February; scattered, heavy infestation may be expected in all districts. Highest districts east and south. YELLOW SCALE (Aonidiella citrina) infested 42 percent of groves (norm 8 percent); 7 percent economic (norm 1 percent). Population at record high for February but few infestations will be important. Highest district central. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) infested 24 percent of groves; 6 percent with moderate to heavy infestations. This scale insect became more numerous in past year. Dictyospermum scale often occurs on leaves and fruit along with red scale and yellow scale. WHITEFLY population higher than average and will remain high. Unaspis citri and Pinnaspis strachani more abundant than in prior years although their distribution is confined to certain areas. BLACK SCALE (Saissetia oleae) at normal level. BROWN SOFT SCALE (Coccus hesperidum), FLORIDA RED SCALE (Chrysomphalus aonidum), MEALYBUGS, SIX-SPOTTED MITE (Eotetranychus sexmaculatus) and APHIDS at below normal February levels. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CHAFF SCALE (Parlatoria pergandii) - CALIFORNIA - Heavy on orange trees in Nicolaus, Sutter County; this is first record for county and only known field infestation in northern area. (Cal. Coop. Rpt.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy on loquat tree in Orange Cove, Fresno County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Adults heavy on grapefruit trees in Yuba City, Sutter County, and Woodland, Yolo County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Heavy on citrus trees in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severe on stem of persimmon at Lake Monroe, Seminole County. (Youtsey, Mar. 3).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Occurring on citrus in Coachella Valley, Riverside County. Populations fairly general and sufficient to require treatment. This mite has not previously inhabited desert citrus areas. (D. A. Avis).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Adults light on almond blossoms in Sonora, Tuolumne County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - ARIZONA - Trappings with Steiner and McPhail traps negative in Yuma County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

Second Beet Leafhopper Survey in Desert Areas of Central Arizona, Southeastern California and Southern Nevada and Utah. Survey for beet leafhopper (Circulifer tenellus) made in breeding grounds February 24-March 6. Data indicate that additional population buildup will occur and movement to cultivated districts of these areas will be heavy. It is also expected to be heavy in eastern Utah and western Colorado. Movement into northern Utah and western Nevada expected to be moderate to heavy. Host plants hardened, drying or dead in most areas south of 34th parallel, but in fair to good condition north of that line. Precipitation in last week of February and early March should help sustain host plants, particularly in those areas north of 34th parallel. (PPC, West. Reg.).

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1964

The 1964 potato psyllid (Paratrioza cockerelli) survey was conducted March 2-5 in the overwintering areas of Arizona and California. Weather conditions over much of the area surveyed have apparently been unfavorable for development of wild Lycium, preferred host plant in the breeding area. Lycium plants in both the Tucson-Phoenix and Blythe-Barstow areas relatively void of foliage. Extremely dry conditions encountered throughout desert area. A few specimens collected at most stops but no heavy populations found at any point. Weather during first two days of survey was cold, with hard, gusty winds. Last 2 days clear, warm and calm. Comparison of populations found during spring surveys 1958 through 1964 shown on following table.

Potato Psyllid Survey on Overwintering Host
Average No. per 100 Sweeps

State	District	1964	1963	1962	1961	1960	1959	1958
Arizona	Phoenix-Tucson	158	715	2236	149	665	992	93
California	Blythe-Barstow	100	185	909	41	282	237	96

Survey indicates particularly light infestation this season. (PPC, West. Reg.).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Medium to heavy on young sugar beets in Huntington Beach, Orange County. (Cal. Coop. Rpt.).

BLACK CUTWORM (Agrotis ipsilon) - CALIFORNIA - Medium to heavy on young sugar beets in Huntington Beach, Orange County. (Cal. Coop. Rpt.).

VARIEGATED CUTWORM (Peridroma saucia) - ARKANSAS - Larvae, probably this species, damaging tomato plants in coldframe in Lincoln County. (Ark. Ins. Sur.).

CUTWORMS - OKLAHOMA - Causing considerable damage in home gardens in Bryan County. (Okla. Coop. Sur.).

A DARKLING BEETLE (Blapstinus sp.) - CALIFORNIA - Medium to heavy on young sugar beets in Huntington Beach, Orange County. (Cal. Coop. Rpt.).

CABBAGE APHID (Brevicornye brassicae) - ARIZONA - Small numbers found on cabbage in Yuma County; heavier infestations on mustards along borders and ditches. (Ariz. Coop. Sur.). FLORIDA - Caused light to heavy damage to 8 percent of 200 cabbage plants at Sanford, Seminole County. (Desin).

MELON APHID (Aphis gossypii) - ARIZONA - Medium on lettuce fields in Yuma and Maricopa Counties. Some fields treated. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZÒNA - Continues light on lettuce and cabbage in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Light to heavy, widespread populations on cabbage in Hildalgo County. (Meisch).

APHIDS - TEXAS - Moderate to heavy and requiring chemical control in parts of Hidalgo County on tomato plants. (Todd).

ONION THRIPS (Thrips tabaci) - TEXAS - Light, local infestations reported on onions in Wells County; average 1 per 3 plants. (Tex. Coop. Rpt., Jones).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light to moderate damage of all of 200 celery plants inspected at Sanford, Seminole County. (Desin).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PALES WEEVIL (Hylobius pales) - ARKANSAS - Activity increasing; collections mostly this species presently. (Ark. Forest Pest Rpt., Mar.).

ENGRAVER BEETLES (Ips spp.).- ARKANSAS - Heavy buildup of Ips spp., especially I. avulsus, occurred in late fall; dying trees evident now. Activity of Ips. spp. and black turpentine beetle (Dendroctonus terebrans) likely to increase rapidly as temperatures rise because of high carryover through winter. (Ark. Forest Pest Rpt., Mar.).

A BARK BEETLE (Pityophthorus carmeli) - CALIFORNIA - Heavy on twigs and bark of Torrey pines in Del Mar, San Diego County. (Cal. Coop. Rpt.).

PINE TIP MOTHS - ARKANSAS - Emergence expected in southern area; first spray application for maximum protection of ornamental pines recommended last week of March. (Ark. Forest Pest Rpt., Mar.).

SOFT SCALES - CALIFORNIA - Adults of Toumeyella pinicola heavy on Monterey pines in Santa Cruz, Santa Cruz County. Adults of Lecanium cerasorum heavy on pyracantha plants locally in Auburn, Placer County. (Cal. Coop. Rpt.).

CONIFER SAWFLIES - ARKANSAS - Egg hatching expected during first half of March if temperatures normal. (Ark. Forest Pest Rpt., Mar.).

A TYROGLYPHID MITE (Carpoglyphus lactis) - CALIFORNIA - Light on twigs and bark of cedar trees in Madera, Madera County, and medium on Pinus sp. in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - MICHIGAN - Adult females emerged generally throughout southern area; observed in maple sap collection pails in Genesee County on March 8. (Newman, Hoffman).

TENT CATERPILLARS (Malacosoma spp.) - TEXAS - M. disstria and probably M. texanum larvae appearing from egg clusters on oak and ash trees in Travis County. Preliminary observations indicate populations may be as high as last years's severe outbreak. (Cook, Newton, Meisch).

CITROPHILUS MEALYBUG (Pseudococcus fragilis Brain* (= P. gahani Green)) - CALIFORNIA - Medium on succulents in nursery in Petaluma, Sonoma County. (Coop. Rpt.).

CITRUS MEALYBUG (Pseudococcus citri) - CALIFORNIA - Medium on Hoya sp. in nursery in Galt, Sacramento County. (Cal. Coop. Rpt.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Medium on miscellaneous fern nursery stock in San Diego, San Diego County, and heavy on gardenia in Reedley, Fresno County. (Cal. Coop. Rpt.).

AZALEA BARK SCALE (Eriococcus azaleae) - NORTH CAROLINA - Noted on azalea in Wayne County. (Wellons, Robertson).

TEA SCALE (Fiorinia theae) - FLORIDA - Severe on leaves of camellia at Jacksonville, Duval County. (King, Mar. 6). NORTH CAROLINA - Noted on camellia at home in Cumberland County. (Brady, Robertson).

EUONYMUS SCALE (Unaspis euonymi) - VIRGINIA - Infested twigs at Hurt, Pittsylvania County. (Rowell, Mar. 5).

MARGARODID SCALES - CALIFORNIA - Xylococculus macrocarpae light on twigs and bark of cedar trees in Madera, Madera County. Adults and eggs of Stomacoccus platani heavy on European sycamore in Mt. View, Santa Clara County. (Cal. Coop. Rpt.).

FOXGLOVE APHID (Acyrthosiphon solani) - CALIFORNIA - Heavy on Dendrobium sp. and Phalaenopsis sp. in orchid house on nursery stock at Altadena, Los Angeles County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Moderate on kapok at Homestead, Dade County. (Knowles, Mar. 5). This is a new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - CALIFORNIA - Heavy on pyracantha in Monterey, Monterey County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Essigella californica medium on pine nursery stock in Ramona, San Diego County. (Cal. Coop. Rpt.). NEVADA - Cinara tujafilina heavy on arborvitae in Las Vegas, Clark County. (Bechtel, Zoller). NEW MEXICO - C. tujafilina moderate to heavy on arborvitae in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.).

CONCHUELA (Chlorochroa ligata) - CALIFORNIA - Adults light on Viburnum sp. in Lincoln, Placer County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - TEXAS - Causing concern to homeowners in Kerr County. (Rector).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Larvae medium on Podocarpus sp. growing stock in Petaluma, Sonoma County. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Numerous eggs present but not hatching. (McQueen).

A PSYCHID MITE (Apterona crenulella) - NEVADA - Overwintering forms present in Carson City, Ormsby County; this is a new county record. Previously collected in Elko County at Lamoille in 1955. (Bechtel, Martinelli, Mar. 3).

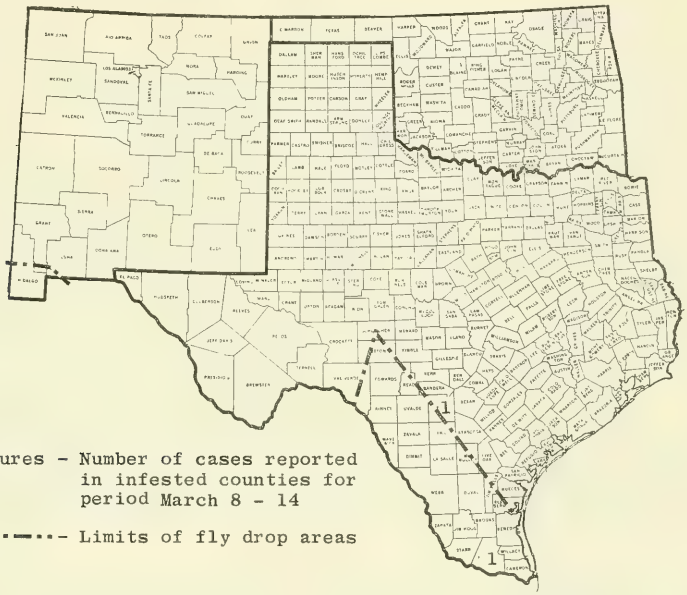
PRIVET MOTH (Brevipalpus obovatus) - CALIFORNIA - Adults heavy on leaves of azalea growing stock in San Diego and Leucadia, San Diego County. (Cal. Coop. Rpt.).

* DeLotto, G.-1958. Brit. Mus. (Nat. Hist.) Bul. 7(3): 96

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

Two cases of myiasis have recently been disclosed in Texas. The first case found in dehorning wound of cow near Edinburg, Hidalgo County, March 11. Second case found in herd near Castroville, Medina County. The herds have been treated with a pesticide and the areas involved are receiving extra sterile screw-worm flies each week to supress outbreaks. Texas livestock producers submitted 81 samples which were not screw-worms during the period March 8-14. Total of 89,336,850 sterile screw-worms were released during this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 8 - 14

-·-·-·- Limits of fly drop areas

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adult activity evident around cattle in Payne County. (Okla. Coop. Sur.). COLORADO - Averaged 16 grubs per head on untreated cattle in Weld County. (Hantsbarger).

HORN FLY (Haematobia irritans) - OKLAHOMA - First occurrence of season observed on cattle in Payne County; averaged under 1 per animal. (Okla. Coop. Sur.).

MOSQUITOES - MARYLAND - First instars of Aedes canadensis collected on March 6 at College Park, Prince Georges County. (U. Md., Ent. Dept.). FLORIDA - Aedes vexans and A. mitchellae generally distributed and causing some annoyance in Gainesville area, Alachua County. Specimens of both species taken in suburban areas and golf courses. A. vexans taken in semienclosed grocery biting man. (Mead, Mar. 6-11).

SHEEP KED (Melophagus ovinus) - PENNSYLVANIA - Much wool loss reported in Montgomery County. (Cole, Feb. 7).

CATTLE LICE - OKLAHOMA - Several species continue moderate on some herds in Payne County (north central); light to moderate in Le Flore County (east central); and heavy in Marshall County (south central). (Okla. Coop. Sur.).

HUMAN FLEA (Pulex irritans) - NEVADA - Heavy in home in Hazen, Churchill County; caused severe annoyance to occupants. Moderate reaction on one person. This is first ARS record for State. (Bechtel, Feb. 20).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Light in office in Woodland, Yolo County. (Cal. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

WHITE-MARKED SPIDER BEETLE (Ptinus fur) - COLORADO - Heavy around foundations of home in Fort Collins; most noticeable on south exposure during milder weather. Invaded home. Det. by T. O. Thatcher. (Simpson).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Adults becoming active in hibernation quarters as temperatures increase. (Okla. Coop. Sur.).

CLUSTER FLY (Pollenia rudis) - MARYLAND - Adults continue annoyance in homes in Baltimore and Prince Georges Counties. (U. Md., Ent. Dept.). UTAH - Several hundred adults and 2 dozen wasps infesting apartment at Logan Cache County. (Knowlton).

FLIES - MISSOURI - Musca autumnalis, M. domestica and some blow flies found swarming in attic of home in Ray County, west central. (Houser, Thomas, Wood).

BOXELDER BUG (Leptocoris trivittatus) - DELAWARE - Many homes in several areas of New Castle County invaded. (MacCreary). MARYLAND - Adults abundant on sunny exposures of building in Towson, Baltimore County. (U. Md., Ent. Dept.). VIRGINIA - Adults common in and around homes at Chincoteague, Accomack County, (Rowell, Mar. 3), and Madison Heights, Amherst County (Tarpley, Mar. 3). NORTH CAROLINA - Nuisance around homes in Buncombe, Gaston, Union, Northampton and Durham Counties. (Robertson, Mount). MICHIGAN - Continues troublesome in homes in Ingham County. (Dowdy). OKLAHOMA - Active around homes in Cleveland County. (Okla. Coop. Sur.). UTAH - Invading number of homes in Holladay-Draper area, Salt Lake County; at Logan, Cache County; and Bountiful area, Davis, County. (Knowlton).

COCKROACHES - CALIFORNIA - Medium population, probably Supella supellectilium, in home in Elk Grove, Sacramento County. (Cal. Coop. Rpt.). UTAH - S. supellectilium infesting several apartments at Logan, Cache County. Blatta orientalis infesting number of homes in Bountiful-Centerville area, and Blattella germanica noted in several restaurants and homes in Layton-Kaysville area, Davis County. (Knowlton, Rogers). COLORADO - B. orientalis reported in Alamosa County. (Hantsbarger). MARYLAND - Supella supellectilium infesting 2 homes in Prince Georges County. (U. Md., Ent. Dept.).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms active in basement of home at Sandy Spring, Montgomery County. (U. Md., Ent. Dept.).

LARGER YELLOW ANT (Acanthomyops interjectus) - NORTH CAROLINA - Found in basement of Wake County home. (Mount).

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy populations invading home in Willows, Glenn County. (Cal. Coop. Rpt.). NORTH CAROLINA - Nuisance around homes in Wake and Rutherford Counties. (Robertson, Mount). MARYLAND - Caused annoyance by entering home at Belair, Prince Georges County. (U. Md., Ent. Dept.).

AN ANOBIID BEETLE (Nicobium castaneum) - FLORIDA - Damaged pine sill in home in Gainesville, Alachua County. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Adults swarming at several localities in Price Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - R. flavipes swarming to outside of building in Wake County March 6. Recent swarms in basement of home noted March 10. Alates noted in Pitt and Duplin Counties, March 3 and 6. (Mount, Robertson). COLORADO - Reticulitermes spp. collected in Denver (Poyner) and winged forms noted at Fort Collins (Jenkens). NEVADA - Reticulitermes sp. medium in home in Reno, Washoe County. (Ting).

TERMITES - PENNSYLVANIA - Reports of winged forms in homes noted. (Udine).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Infestation found in grain storage at feedlot in Gila Valley, Yuma County. Second infestation also found on hog farm at Yuma that was using screenings from infested feedlot. (Ariz. Coop. Sur.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - CALIFORNIA - Adults heavy in stored barley in Butler bins in Grimes, Colusa County; adults causing heavy damage to farm storage. (H. Shaffer, L. Jensen).

A SPIDER BEETLE (Ptinus verticalis)- CALIFORNIA - Medium on safflower seed for stock feed in Corcoran, Kings County. (Cal. Coop. Rpt.).

A MEALWORM (Tenebrio sp.) - TEXAS - Moderate, local infestation in stored cottonseed meal and cake in Potter County. (Rummel).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Hippodamia convergens adults becoming quite active in some alfalfa and small grain fields. (Okla. Coop. Sur.). ALABAMA - Cycloneda sanguinea egg masses now being deposited on pine needles in central area where aphids persisted all winter. (McQueen). FLORIDA - Collections from 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County, included 1 adult Hippodamia convergens, 5 adult Cycloneda sanguinea and 7 unspecified lady beetle larvae. (Mead).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Chrysopa sp. becoming quite active in some alfalfa and small grain fields. (Okla. Coop. Sur.). ALABAMA - C. oculata adults becoming quite numerous on pines. (McQueen). FLORIDA - Larvae of unspecified species noted in Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

BROWN LACEWINGS (Micromus spp.) - ALABAMA - Adults becoming quite numerous on pines. (McQueen). FLORIDA - One M. subanticus collected from 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead)

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Becoming quite active in alfalfa and small grains. (Okla. Coop. Sur.). FLORIDA - Three adults collected from 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

A FLOWER BUG (Orius insidiosus) - OKLAHOMA - Becoming quite active in some alfalfa and small grain fields. (Okla. Coop. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - FLORIDA - Five adults taken on 200 sweeps on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continues in peripheral areas in city of Sacramento, Sacramento County; 5 new, very light infestations found. Treatment continues in known infested and buffer areas and will be completed well in advance of adult emergence if weather permits. Post-spray mortality counts show satisfactory kill in all cases. (Cal. Coop. Rpt.).

LESSER MEALWORM (Alphitobius diaperinus) - PENNSYLVANIA - Adults and larvae numerous in chicken manure under cages at Sunbury, Northumberland County. (Gesell, Feb. 25).

A BARK BEETLE (Pseudopityophthorus pubipennis) - CALIFORNIA - Medium in home in Redding, Shasta County; these infestations usually come from oak firewood. (Cal. Coop. Rpt.).

A LONG-HORNED BEETLE (Neoclytus sp.) - MARYLAND - Adults collected near fireplace wood in home at Bel Air, Harford County. (U. Md., Ent. Dept., Mar. 6).

A HELEOMYZID FLY(Pseudoleria sp.) - MASSACHUSETTS - Reported breeding in large numbers in decomposing organic waste material at Holyoke, Hampden County, and Worcester, Worcester County. (Wave).

A DRYWOOD TERMITE - DELAWARE - Undetermined species heavy in 2 wicker baskets in home in New Castle County. (Burbutis, MacCreary).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 3/7-13																	3							Misc.
FLORIDA																								
Gainesville 3/10			BL						11		1										2			
GEORGIA																								
Tifton 3/5-11			BL							0	2								0	0				
MISSISSIPPI																								
Stoneville 3/7-13	37-81	1.34"	MV	7							1						5	1			1			
Stoneville 3/7-13	37-81	1.34"	BL	3			1				2						4	3			6			
SOUTH CAROLINA																								
Charleston 3/9-15	41-76	0.77"	BL	3			0		3	0	0	0					1	0	0	0	14		0	
Clemson 3/1-6																		1						
Clemson 3/7-13																		1						
TEXAS																								
Brownsville 3/5-11			5 BL	52			12		296	1	150	37		304			67	8	3	0	109		71	

* BL = blacklight; I = incandescent; MV = mercury vapor; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1963

Submitted by the Hawaiian
Entomological Society *

Highlights

SOUTHERN GREEN STINK BUG spread to the islands of Hawaii, Maui, Molokai and Lanai. Damage to various vegetable, fruit, nut and ornamental plants was widespread. Two species of parasites are well established on Oahu and becoming established on neighboring islands. A TARO LEAFHOPPER (Tarophagus proserpina) was discovered for the first time on Molokai. A BARK BEETLE (Xylosandrus compactus (=Xyleborus morstatti)) was found on avocado and Isabella grape twigs on Oahu. A GIANT AFRICAN SNAIL (Achatina fulica) was found at Hakalau, Hawaii, for the first time and eradicative measures were instigated; and found on Molokai for first time also. An intentionally introduced STEM-BORING WEEVIL (Microlarinus lypriformis) was very destructive to puncture-vine (Tribulus terrestris) and nohu (T. cistoides) on Kauai.

Cereal and Forage Insects

A BILLBUG (Sphenophorus venatus vestitus) continued to damage zoysia lawns on Oahu, especially in the Waialae-Nui area; at Kalaheo, Kauai, it caused severe damage to zoysia. LAWN ARMYWORM (Spodoptera mauritia acronyctoides) plagued homeowners with Bermuda grass lawns and heavily damaged Tifton 358 grass lawns on Oahu. The species was sporadically active throughout the year on Maui, causing severe damage at times. A moderate outbreak of ARMYWORM (Pseudaletia unipuncta) occurred at the Kahua Ranch, island of Hawaii, near the end of the year. RHODES-GRASS SCALE (Antonina graminis) was very active on Maui near sea level in the summer. An outbreak of JAVA SUGARCANE LEAF MITE (Oligonychus exsiccator) was reported at Moloaa, Kauai.

Fruit Insects

An OLETHREUTID MOTH (Cryptophlebia ombrodelta) was reported attacking seeds of litchi (Litchi chinensis) and causing fruit drop on Kauai. A BARK BEETLE (Xylosandrus compactus (=Xyleborus morstatti)) damaged twigs of avocado and Isabella grape on Oahu. A light infestation of a PHYCITID MOTH (Cryptoblabes aliena) occurred on macadamia nut blossoms on Oahu.

Truck Crop Insects

SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) caused widespread damage to orchids (Dendrobius spp., Vanda spp. and Cattleya spp.), hibiscus, litchi, mango, macadamia nuts, citrus, tomatoes, yardlong beans, soybeans, pole beans, string beans, watercress, daikon, broccoli and other cruciferous plants over the island of Oahu. The species has extended its range around the island of Oahu and from sea level to 1,265 feet elevation. The stink bug reached the neighbor islands of Hawaii (in June), and Maui, Molokai and Lanai (in August) this

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* Coordinated by the Entomology Branch, State Department of Agriculture with the University of Hawaii, Hawaiian Sugar Planters' Association Experiment Station and Pineapple Research Institute of Hawaii cooperating.

year. Damage to soybeans, string beans, eggplant and hibiscus occurred on Hawaii. Populations on Molokai, Lanai and Maui were small but widespread. Some feeding damage was observed on eggplant, daikon and tomatoes. Heavy damage to macadamia nuts was recorded on Oahu. A PARASITIC TACHINA FLY (Trichopoda pennipes), a parasite of adults of southern green stink bug, has been released on all infested islands and established on Oahu, Kauai and Hawaii. A SCELIONID WASP (Telenomus basalis), an egg parasite of the same pest, has been released on all infested islands and established on Oahu and Hawaii.

A CUTWORM (Agrotis dislocata) (a tentative identification) caused severe damage to corn, broccoli, potato, nasturtium, and other hosts, at the 1,500-3,000 foot level on Maui; a virus disease exerted some control. A TARO LEAFHOPPER (Tarophagus proserpina) was found on the island of Molokai for the first time. Large numbers appeared on taro (Colocasia esculenta) on Kauai in November and caused considerable damage in Waimea Valley in December. The anticipated buildup of a PREDACEOUS CAPSID BUG (Cytorhinus fulvus), an egg predator, did not materialize, perhaps because of unusually cold weather. The leafhopper was very active on taro in windward Oahu the latter part of the year. VEGETABLE WEEVIL (Listroderes costirostris obliquus) was extremely active at higher elevations on Maui and caused severe damage to some vegetable and flower crops. Celery roots on Hawaii were heavily infested by a WEEVIL (Brachyrhinus cribricollis) in a field at Waimea, island of Hawaii, which had been previously planted with burdock. A LEAF BEETLE (Lema trilineata californica) was very active on Kauai, and moderate to severe damage was reported on poha (Physalis peruviana). BLACK CUTWORM (Agrotis ipsilon) caused heavy damage to vegetable crops on Maui early in the year. MELON FLY (Dacus cucurbitae) and ORIENTAL FRUIT FLY (Dacus dorsalis) caused severe damage to tomatoes and cucumbers on Kauai. A GRASSHOPPER (Atractomorpha ambigua) occurred in large numbers on Kauai and was destructive to daikon and Chinese green mustard cabbage. A SYRPHID FLY (Eumerus marginatus) caused severe damage to ginger (Zingiber officinale) at Keaau and Papaikou, island in Hawaii.

Forest, Ornamental and Shade Tree Insects

An APHID (Cinara carolina) infestations ranged light to moderate on loblolly pine (Pinus taeda) on Maui. FULLER ROSE BEETLE (Pantomorus godmani) and GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) infested slash pine (Pinus elliottii) on Kauai; damage was light from both species. A NOCTUID MOTH (Polydesma umbricola) was active on monkeypod (Samaea saman) flushes during the spring on Oahu. Larvae of another NOCTUID MOTH (Ascalapha odorata) moderately damaged monkeypod foliage on Maui. An OLETHREUTID MOTH (Cryptophlebia ombrodelta) damaged shower trees (Cassia spp.) in Paia and Makawao on Maui; on Kauai this species attacked twigs and seeds of several species of Cassia, including C. occidentalis and C. bicapsularis. An unusually heavy infestation of a KOU MOTH (Ethmia colonella) was observed on kou (Cordia subcordata) at Kawaihae and Honaunau (City of Refuge), island of Hawaii. The species was very active on Cordia subcordata and C. sebestana at Poipu, Kauai. COCONUT LEAF ROLLER (Hedylepta blackburni) occurred in large numbers on palms at Manuka Park, South Kona, Hawaii island. It caused moderate damage to coconut on Maui.

At Kukuihaele, island of Hawaii, a heavy infestation of TAHITIAN COCONUT WEEVIL (Diocalandra taitensis) was observed on young terminal shoots of coconut. Severe attack to seeds of koa (Acacia koa) by a COFFEE-BEAN WEEVIL (Araecerus fasciculatus) was noted at Waiakea Forest Reserve, Hawaii island. A NOCTUID MOTH (Achaea janata) was very active on castor-bean, kukui (Aleurites moluccana) and rose during March on Maui. In many areas of Oahu, outbreaks of this noctuid on castorbean and croton (Codiaeum spp.) were observed. It was noted on castor-bean at Waimea and Kona, island of Hawaii.

Adults of a SCARAB (Protaetia fusca) heavily infested fruits of noni (Morinda citrifolia) at the City of Refuge, Honaunau, Hawaii island, and fruits of litchi

and mango on Oahu. Moderate numbers of a LEAF BEETLE (Lema trilineata californica) fed on cup-of-gold (Solandra nitida) on Hawaii. An ORCHID WEEVIL (Orchidophilus aterrimus) continued abundant in vanda fields on the island of Hawaii, and another species, O. peregrinator, was very active on canes of dendrobium and shoots of vanda orchids on Oahu. SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula) continued to cause serious damage to orchids, hibiscus and many other ornamentals on Oahu. A STINK BUG (Brochymena quadripustulata) reappeared on a farm at Lualualei, Oahu, after dropping out of sight for a year.

Insects Affecting Man and Animals

NORTHERN CATTLE GRUB (Hypoderma bovis) was quite active on dairy cows at Naalehu, island of Hawaii; it was reported from Hanalei and Poipu on Kauai; and meat inspectors reported frequent grubs in newly dressed hides. Increasing activity of northern cattle grub and COMMON CATTLE GRUB (H. lineatum) was noted on Maui. Heavy populations of a CALLIPHORID FLY (Phaenicia sericata) were observed in Kona, Hawaii island; newly born calves were attacked. STABLE FLY (Stomoxys calcitrans) was very troublesome to cattle and horses in the Ewa area on Oahu.

An outbreak of a CALLIPHORID FLY (Rhinia apicalis) occurred in Hilo, Hawaii, causing considerable annoyance in restaurants. A VINEGAR FLY (Drosophila hydei) appeared in enormous numbers on Kauai from March to May and was a constant nuisance in homes. Swarms of a SCIARID MIDGE (Sciara hardyi) invaded homes, schools and business offices in the Waianae area of Oahu. A SAP BEETLE (Carpophilus humeralis) (also called "pineapple bug") was troublesome to homeowners who resided near abandoned pineapple fields in the Waipahu area, Oahu. FIRE ANT (Solenopsis geminata var. rufa) was moderately active at Kihei, Maui. A CARPENTER ANT (Camponotus variegatus hawaiiensis) continued to annoy many homeowners on Oahu. A SPIDER (Chieracanthium diversum) bit several persons, necessitating medical treatment.

Household and Structual Insects

FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) was discovered in Kahului and Wailuku, Maui, in April. An eradicative program was instituted.

Beneficial Organisms

A CARNIVOROUS SNAIL (Gonaxis quadrilateralis), which attacks Achatina fulica (a giant African snail), is established on an area of over 50 acres in the Tantalus-Makiki area of Oahu and has greatly reduced the A. fulica populations. Five species of egg parasites of southern green stink bug were introduced from Australia and the West Indies, and two forms of a PARASITIC TACHINA FLY (Trichopoda pennipes), a parasite of adults of southern green stink bug, were introduced from the West Indies and Florida. Two parasites, Telenomus basalis (a scelionid wasp) and Trichopoda pennipes (a tachina fly) (West Indian), are established and giving high parasitism in some areas. A COCCINELLID BEETLE (Hyperaspis trilineata) was introduced for the control of pink sugarcane mealybug (Trionymus sacchari). A MYMIRID WASP (Patasson calendrae), an egg parasite, was released against Sphenophorus venatus vestitus (a billbug). A PARASITIC APHELINID (Aphytis holoxanthus) was introduced for the control of Florida red scale (Chrysomphalus aonidum). A PARASITIC TACHINA FLY (Eucelatoria armigera) was released against armyworms and cutworms. An epizootic of a cytoplasmic polyhedrosis virus disease occurred during March and April on a PYRALID MOTH (Cactoblastis cactorum), decimating populations of the insect on Oahu. A STEM-BORING WEEVIL (Microlarinus lypriformis) of puncture-vine (Tribulus terrestris) was introduced from California and Arizona, and quickly became established on Kauai, where it became very destructive to puncture-vine and the related nohu (T. cistoides). Another STEM-

BORING WEEVIL (Apion antiquum) continued to devastate the weed Emex australis on Hawaii. A CERAMBYCID STEM BORER (Plagiohammus spinipennis) of lantana was found established in new areas on the island of Hawaii. A LEAF-MINING HISPID (Octotoma scabripennis) of lantana was found established on Hawaii for the first time, nine years after its release.

Miscellaneous Pests

A GIANT AFRICAN SNAIL (Achatina fulica) was found at Hakalau, Hawaii, in April and eradicative measures were instituted. The snail was also discovered for the first time on Molokai in September. Considerable damage to soybeans by this snail was reported from Waimanalo, Oahu, in December. A heavy infestation of MEADOW SPITTLEBUG (Philaenus spumarius) nymphs and adults was observed on the weed, Hamakua pamakani (Eupatorium riparium), at Honomalino, South Kona, island of Hawaii, in September. Considerable wilting was produced on the terminal parts of the plants.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 205)

TOBACCO INSECTS

Highlights:

Tobacco insects, as a group, did not appear to be as serious as in 1962. HORNWORMS were generally not much of a problem and BUDWORMS did not cause any appreciable injury until late in the season. TOBACCO BUDWORM was more of a problem on flue-cured tobacco in Florida, but the reasons are not readily apparent. Budworms were about twice as numerous as the previous year on shade-grown tobacco in the Quincy area of Florida, and BEET ARMYWORM was recorded for the first time on shade-grown tobacco in that area of Florida. CABBAGE LOOPER was more of a general problem in North Carolina than in 1962, and most infestations in Georgia were moderate to heavy. CUTWORMS were more damaging than usual in South Carolina, and they were damaging to shade-grown tobacco at Quincy, Florida. GREEN PEACH APHID was less troublesome generally than in 1962. FLEA BEETLES, predominantly TOBACCO FLEA BEETLE, are expected to be a major problem to shade-grown tobacco in in the Quincy area of Florida in 1964. Tolerance to chlorinated hydrocarbon insecticides is strongly suspected. Tobacco flea beetle was the heaviest and most destructive in Maryland than for several years. SOUTHERN POTATO WIREWORM was more damaging than usual in South Carolina, but damage by this species and TOBACCO WIREWORM was considerably less than in 1962 in North Carolina.

TOBACCO HORNWORM (Protoparce sexta) and TOMATO HORNWORM (P. quinquemaculata) were among the major tobacco pests observed in southern OHIO during September. Both broods of Protoparce spp. were about normal in MARYLAND, with at least one-third of the growers applying treatments for control of these pests. Hornworms were generally light in Pittsylvania County, VIRGINIA, in June and light trap collections were unusually low. Larvae of both species were light to medium on late tobacco in Pittsylvania County in August. Hornworm infestations were relatively low again during 1963 in NORTH CAROLINA. Populations in June and July were lighter at the Border Belt Tobacco Research Station, Whiteville, Columbus County, than in 1962, but after harvest they were somewhat higher. Low numbers of hornworms were found on tobacco in TENNESSEE, and populations in SOUTH CAROLINA were less noticeable than in most past years. Tobacco hornworm populations were also at low levels in the flue-cured tobacco-growing areas of FLORIDA, which is principally from Alachua County northwest through Madison and Hamilton Counties to the Georgia line. Populations of hornworms on shade-grown tobacco in the Quincy area of Florida were almost nonexistent as has been the case for the past five years. The first adult in the Quincy area was caught in a light trap on April 22, 1963, compared with May 3, 1962. Light trap catches in this area showed 23 percent fewer hornworm adults caught in 1963.

POTATO TUBERWORM (Gnorimoschema operculella) was worse than usual in some flue-cured tobacco in FLORIDA than at any time in the last 15 years. Two of the hardest hit areas were Archer, Alachua County, and Lake City, Columbia County. Severe infestations were isolated. There seems to be no particular pattern to the appearance of this pest in tobacco fields in Florida.

BUDWORMS (Heliothis spp.) were again below normal in MARYLAND, with only a few economic infestations occurring in tobacco. CORN EARWORM (H. zea) was of lesser importance on tobacco in OHIO than hornworms, differential grasshopper (Melanoplus differentialis) and tobacco flea beetle (Epitrix hirtipennis). TOBACCO BUDWORM (H. virescens) was the most common tobacco insect in TENNESSEE although a large amount of parasitism of this insect was observed during the season. Tobacco

budworm larvae were generally light on tobacco in Pittsylvania County, VIRGINIA, early in the season, but some damage appeared on late tobacco in the county. Budworms were considerably lower in NORTH CAROLINA at the time of economic infestations than they were in 1962. Corn earworm infestations were light to heavy on tobacco in GEORGIA, especially late in the season. In FLORIDA, tobacco budworm was more of a problem on flue-cured tobacco for reasons not readily apparent. However, at the Gainesville experimental plots, the budworm was lighter on unsprayed tobacco. This seemed due mainly to a high population of predatory and parasitic wasps. On shade-grown tobacco in the Quincy area, budworms were about twice as numerous as in 1962. Total losses to this crop were about 6 percent ($810,000) in 1963, considering all pests. Budworms caused about 1.2 percent of this loss. The outlook for 1964 is for budworms to be more plentiful on shade-grown tobacco.

BEET ARMYWORM (Spodoptera exigua) was light to moderate on tobacco in Coffee County, GEORGIA. This was where this species was first found in Georgia. It has since been reported on cotton and peanuts. In FLORIDA, beet armyworm caused about five percent damage ($7,500) to approximately 50 acres of shade-grown tobacco in the Quincy area. This was the first known record of commercial loss to this crop, as well as the first record on shade-grown tobacco.

CABBAGE LOOPER (Trichoplusia ni) was more of a general problem on tobacco in NORTH CAROLINA in 1963. Reports of damage to a number of fields were received from Carteret and Pamlico Counties during June and July. Lighter infestations were scattered throughout the other tobacco areas of the State. Infestations in GEORGIA were light to heavy throughout the tobacco-growing area, with most infestations moderate to heavy. Cabbage looper was not as numerous on shade-grown tobacco in the Quincy area of FLORIDA, in fact it was three times less plentiful. Losses to shade-grown tobacco ran about 0.5 percent. Cabbage looper populations are expected to remain about the same in 1964 in this area of Florida.

CUTWORMS were more damaging than usual to tobacco in SOUTH CAROLINA, and Agrotis spp. were more numerous on shade-grown tobacco and caused more damage to newly set plants in the Quincy area of FLORIDA than in 1962. Losses to shade-grown tobacco in the Quincy area were about 2.8 percent. Cutworms are expected to be more plentiful in 1964 on this crop at Quincy.

GREEN PEACH APHID (Myzus persicae) was the heaviest since 1948 on flue-cured tobacco in experimental plots in FLORIDA. This may have been due to inadequate insecticide programs in the plant beds. Overall, this aphid remained about the same as in recent years on flue-cured Florida tobacco, with no severe outbreaks because of the routine control measures taken. Green peach aphid populations on shade-grown tobacco in the Quincy area were normal, but very little if any loss occurred. Infestations in GEORGIA were light to moderate on tobacco in the plant bed and in the field. Green peach aphid was less abundant in VIRGINIA than in 1962. It was an occasional pest in irrigated fields of tobacco in Pittsylvania County. Infestations were general in all tobacco areas of MARYLAND during late July and August, but only a few heavy to severe infestations were reported. A moderate amount of spraying for aphids was done in Calvert and St. Marys Counties. Green peach aphid was of lesser importance than hornworms, differential grasshopper and tobacco flea beetle in OHIO.

Flea beetles, predominantly TOBACCO FLEA BEETLE (Epitrix hirtipennis), caused some concern on shade-grown tobacco in the field in several locations around Quincy, FLORIDA. This was the first commercial loss from flea beetles since 1947. Tolerance to chlorinated hydrocarbon insecticides by flea beetles is strongly suspected. Losses to the crop as a result of flea beetles was estimated at 0.8 percent. It is quite apparent that flea beetles will be the major problem to the shade-growing tobacco farmer during 1964 in Florida. Tobacco flea beetle infestations were light to heavy on tobacco in the field in GEORGIA, and fairly large populations of unspecified FLEA BEETLES were noted on tobacco in some areas of SOUTH CAROLINA towards the last half of the season. Tobacco flea beetle remained at low levels on flue-cured tobacco early in the season in VIRGINIA, but it began

increasing in many tobacco fields, especially nonirrigated ones, in Pittsylvania County in late July. Also in Virginia, PALE-STRIPED FLEA BEETLE (Systena blanda) caused considerable damage to newly set tobacco plants on one farm in Dinwiddie County in May. Tobacco flea beetle numbers were the heaviest and the most destructive to MARYLAND tobacco in several years. Populations were heaviest in mid-June and in mid-August. Tobacco flea beetle was also one of the major tobacco pests observed in southern OHIO during September along with hornworms and differential grasshopper.

TOBACCO WIREWORM (Conoderus vespertinus) and SOUTHERN POTATO WIREWORM (C. falli) damage was considerably less than in 1962 in NORTH CAROLINA. However, severe injury occurred in some fields throughout the Coastal Plain area. The latter species is apparently still confined to the area between and including Columbus and Pamlico Counties. In SOUTH CAROLINA, southern potato wireworm was more damaging to tobacco than usual. Tobacco wireworm infestations were severe locally in several GEORGIA counties. Wireworms, principally Conoderus spp., were rated at approximately the same level on flue-cured tobacco in FLORIDA as in previous years. Conoderus spp. appeared to be on the decline on shade-grown tobacco in the Quincy area, because fewer cases of damage were reported in commercial fields. Some losses were attributed to wireworms in the Quincy area, however.

Light to moderate infestations of VEGETABLE WEEVIL (Listroderes costirostris obliquus) were found on tobacco in the plant bed in GEORGIA; and larvae of this species caused considerable injury to 500 square yards of tobacco plant beds in Pittsylvania County, VIRGINIA, in May. However, reports in MARYLAND of injury by vegetable weevil were below normal. Moderate infestations of WHITE-FRINGED BEETLES (Graphognathus spp.) were found on tobacco in localized parts of several GEORGIA counties.

For the first time in several years, SUCKFLY (Cyrtopeltis notatus) caused concern in several VIRGINIA localities. Light to medium infestations were detected in single fields from late July to early September.

Several other pests were reported troublesome to tobacco locally. In MARYLAND, THRIPS were conspicuous on newly set plants in sections of Anne Arundel, Calvert and Prince Georges Counties, and GARDEN SPRINGTAIL (Bourletiella hortensis) was widespread and abundant during April, but the latter pest caused only light damage to tobacco in plant beds. DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) was among the major pests of tobacco observed in southern OHIO during September, and CAROLINA GRASSHOPPER (Dissosteira carolina) was the most frequently encountered grasshopper feeding in tobacco fields in WISCONSIN.

In the Quincy area of FLORIDA, insect losses to the shade-grown tobacco crop ran about six percent ($810,000) with cutworms (2.8%), budworms (1.2%), flea beetles (0.8%) and cabbage looper (0.5%) causing the bulk of the damage. About 1.7 percent was lost to wireworms, beet armyworm and other insects.

COTTON INSECTS

Highlights:

BOLL WEEVIL infestations were extremely light during 1963 over a wide area of the cotton belt. Several States that normally report some economic damage, such as North Carolina, Tennessee and Missouri, reported that weevil infestations in 1963 were practically nonexistent. The extreme winter of 1962-63 was probably the major factor in reducing populations in that winter survival was generally very low. The boll weevil appeared to be the most damaging in Texas, especially those areas where adequate controls were not initiated. Also, some spread of

the weevil was reported above the Caprock in west Texas. BOLLWORMS were generally regarded as being the major pest problem of cotton in 1963. Severe damage was recorded in Arizona, New Mexico, Texas and Oklahoma; and heavy infestations existed in Arkansas, Mississippi, Alabama and Georgia. The PINK BOLLWORM was found again in the eradication area of central Arizona and populations increased substantially in Arkansas and Louisiana. The pink bollworm increase was also ncticeable in some other infested areas of Arizona, New Mexico, Texas and Oklahoma. CABBAGE LOOPER and SALT-MARSH CATERPILLAR were responsible for considerable damage to cotton in Arizona, and BEET ARMYWORM infestations were mostly light to moderate in Georgia. COTTON LEAFWORM became quite noticeable late in the season, particularly in States west of the Mississippi River. Many severe infestations of LYGUS BUGS developed in all cotton-growing areas of California, and they were among the most damaging pests of cotton in Arizona. SPIDER MITES became abundant in the Carolinas during July and August, and damage was high in some cases. Serious infestations were also reported during June in California. Infestations in other States were more localized although some economic damage was recorded.

The BOLL WEEVIL (Anthonomus grandis) was light during the early part of the season in TEXAS, but as the season progressed, populations became damaging in areas where adequate control measures were not initiated. Boll weevil appeared in several counties above the Caprock in west Texas including Floyd, Crosby, Garza, Briscoe and Lynn. The weevil was also quite heavy in the red rolling plains section of Texas. The containment program in the big bend and El Paso areas of the Rio Grande, which is aimed at preventing the weevil from moving into western cotton-producing areas of the country, was continued in 1963. Boll weevil was generally noneconomic to light throughout the season in OKLAHOMA, except for some localized "hot spots" in the south central area. Only limited controls were necessary in 1963. Some late buildup was noted in southwest Oklahoma, but most cotton had reached maturity before the increase.

Boll weevil was extremely light during 1963 in ARKANSAS. The number of fields with infestations present was comparable with past years; however, the number of weevils present remained very low in general throughout the year making 1963 the lightest boll weevil year in some time. The point-sample method of survey was used by all cotton scouts and is being taught to farmers. The need of insecticidal treatments is based on percent punctured squares and rate of squaring; both of these factors are considered in the point-sample method of survey. On this basis, the percentage of fields needing treatments ranged 0-13.8, with a seasonal average of only 6.0. In the Tallulah area of LOUISIANA, boll weevil was generally light early in the season, but a buildup did occur during the latter part of July when frequent showers made controls difficult and third-generation weevils were common. Cotton needed protection for the remainder of the season. Infestations in MISSISSIPPI were light and relatively late in the season. No weevils were found in many fields during the growing season. Generally speaking, control measures for boll weevil were not needed until August, and then in very few fields. Infestations in MISSOURI were practically nonexistent during 1963. No insecticide applications were made for boll weevil control during the season. Boll weevil was also nonexistent during the growing season in TENNESSEE. It appeared in numbers late in the season but too late to cause any harm. Controls were not necessary for this insect in 1963. This was an unusual situation in view of the fact that over 3,000 weevils went into hibernation in the fall of 1962 in western Tennessee. At planting in the spring of 1963, there were large numbers of weevils around as shown by the catches on the weevil flight traps. At cotton fruiting time, the weevils had disappeared.

The extreme winter of 1962-63 along with other unknown factors evidently had a most serious effect on the winter survival of the boll weevil in ALABAMA. Infestations were lower perhaps than during the past three decades. Only 51 percent of the cotton acreage in Alabama received controls and only an average of

about three applications were made on these acres. The boll weevil was not a problem in the northern half of Alabama, although it did appear by October and November. Infestations in GEORGIA were the lowest observed in several years. As late as mid-August, south Georgia cotton fields had a range of 6-77 percent punctured squares (averaged 38 percent). Emergence of boll weevil from hibernation in SOUTH CAROLINA was lighter than in 1962. Weevils were under control in fields where growers had made application during the rainy periods of late June and early July. As migration began in the Coastal Plain, boll weevil was very light in areas where growers were on regular schedules, especially in community-wide control projects. Where fields had not been protected, counts showed 100 percent of the squares to be damaged by weevils and bollworms. In general, boll weevil caused more damage in the Coastal Plain area than in the Piedmont of South Carolina. Dry weather late in the season tended to hold the pest in check. Winter weather probably had more effect in the Piedmont area than in the Coastal Plain. Heavier fertilization of recent years has the effect of making cotton grow longer and requiring boll protection for another generation. In NORTH CAROLINA, boll weevil numbers were lowest in experimental plots in Scotland County when the plants were in the 8-leaf stage than any time since recording was begun in 1957. Counts at that time were about 25 per acre. Early season infestations were quite low throughout North Carolina and did not begin to increase noticeably until late July. By mid-August, the poorly treated fields in the Coastal Plain had high punctured-square counts, but satisfactory control was being obtained in properly treated fields.

The boll weevil survival surveys in the spring of 1963 indicated that numbers were down in all cotton-producing areas. The average number of weevils per acre of trash was 121 in northeast Louisiana, 452 in central Texas, 13 in Mississippi, 350 in the Piedmont of North and South Carolina, 161 in north central North Carolina, 914 in south central South Carolina and 1,560 in the Coastal Plain of North and South Carolina. The 1963 fall hibernation surveys indicated that, in general, fewer weevils went into hibernation than in the fall of 1962. Only south central South Carolina and northeastern Louisiana had higher average counts of live weevils per acre than in 1962. The average numbers in these areas were 6,319 in south central South Carolina and 7,317 in northeast Louisiana. Counts in other cotton-producing areas were 968 in the Piedmont of North and South Carolina, 10,002 in the Coastal Plain region of North and South Carolina, 1,263 in north central North Carolina, 3,010 in Mississippi, 1089 in Tennessee (McNairy County) and 517 in central Texas.

Heavy, local infestations of FULLER ROSE BEETLE (Pantomorus godmani) were found on cotton in McDuffie County, GEORGIA; and a WEEVIL (Rhyssomatus pruinosus) was collected from cotton in Midland County, TEXAS. Also in Texas, undetermined DARKLING BEETLES damaged cotton in the southern part of the red rolling plains area. PALE-STRIPED FLEA BEETLE (Systena blanda) was noted feeding on cotton in MISSOURI, and another FLEA BEETLE (S. taeniata) was light on cotton in the Antelope Valley of Los Angeles County, CALIFORNIA.

BOLLWORM (Heliothis zea) was late in starting in CALIFORNIA, but heavy, local infestations developed and heavy populations were present until frost. Populations in NEVADA began to increase in Nye County in late August, but infestations were below 1961 and 1962 levels, with only a few fields requiring treatments. Severe damage occurred in ARIZONA after August 1 from the feeding of large populations. Nearly all cotton-growing areas of Arizona reported above normal numbers of the pest. In NEW MEXICO, bollworm was a serious problem in cotton fields in the Pecos and Mesilla Valleys for the second season in a row. Growers found this pest very difficult to control because of the overlapping of generations. During the late summer and fall, it was often possible to find all stages from eggs to full-grown larvae in the cotton fields at one time.

Bollworm and/or TOBACCO BUDWORM (H. virescens) were the most damaging cotton insects during 1963 in TEXAS. Heavy infestations appeared in all areas, with serious damage often occurring before the population could be brought under

control. Infestations of bollworm in OKLAHOMA were becoming common as cotton plants began to square in early July. By late July, populations were increasing in irrigated cotton to high infestation levels which continued throughout the season in most of the irrigated areas of the State. Bollworm and tobacco budworm infestations increased rapidly in MISSOURI beginning the last week of July and increasing until mid-August when approximately 85 percent of the scouted fields were infested. A survey for bollworms (Heliothis spp.), conducted when infestations were at their peak, showed that tobacco budworm made up 3.9 percent of the population.

Bollworms, including both bollworm and tobacco budworm, were the most important pests in ARKANSAS in 1963. Numbers were higher than they have been in any year since any type of records have been kept. Insecticide resistance is on the increase also. Difficulty in control was experienced in many areas. The percentage of fields infested with bollworms ranged from 25.4 to 79.7 with a season average of 56.8. Comparable figures for the last 5-year average ranged 23.0 to 71.6 percent and a seasonal average of 49.5 percent. Larval numbers were high in many cotton fields. Fields with 4-10 larvae per 100 terminals ranged from 2.8 to 32.8 percent. Fields with 11-25 larvae per 100 terminals ranged from less than one to 10.6 percent. Fields with over 25 larvae per 100 terminals ranged from zero to 2.2 percent. Scouts now record damaged squares, and when six percent levels are found, serious bollworm problems exist. The range of fields in this category was 0.6 to 23.9 percent, with a seasonal average of 8.4 percent in 1963.

An extensive study of both bollworm and tobacco budworm was made in Arkansas in 1963. Of 2,798 larvae collected, 5.9 percent were tobacco budworm. Of moth collections made, only 1.9 percent were tobacco budworm, indicating that tobacco budworm is less attracted to light than bollworm. In addition, the collection data indicated that the highest percentage of tobacco budworm larvae were collected in late June and early July, and that tobacco budworm is more numerous in the southwest area than in other areas of the State.

BOLLWORMS (Heliothis spp.) were important pests in the Tallulah area of LOUISIANA. Infestations in the latter part of the summer were the primary problem in cotton fields and controls were necessary to protect the crop. In MISSISSIPPI, bollworm infestations were generally heavy during August and September. This pest caused the most problem with cotton during 1963. Tobacco budworm was present in Mississippi cotton fields all season, but it was most prevalent during the early part of the season in June and July. Several localized infestations were evident in August which caused severe damage to cotton. In TENNESSEE, bollworms were a problem in localized sections of the cotton-growing area. The bollworm complex in ALABAMA was as serious, if not more serious, to the cotton crop than boll weevil. Both bollworm and tobacco budworm were present throughout the State and presented a more difficult control problem than other cotton insects. Infestations in GEORGIA were heavy and more severe than in several years. The first larvae were found the last week of April. Damaging populations continued to be a problem until harvestime. Bollworms have become much more important in SOUTH CAROLINA, especially in the Coastal Plain area. Populations peaked in the late season period. The highest moth count of Heliothis zea in the Florence area was during the week of August 15. The total number of moths caught was two and one-half times the total caught to that date and 10 times the catch of the same week in 1962. In NORTH CAROLINA, bollworms were about normal for the year. Terminal infestations of 10-20 percent were noted in some poorly treated fields in the latter half of August and 0-4 percent were noted in well-treated fields. About 10 percent of the bolls were damaged in untreated plots in Scotland County in 1963.

Heavy PINK BOLLWORM (Pectinophora gossypiella) infestations were found in Graham County, ARIZONA, during the first week of October. Later surveys indicated nearly all fields in Graham, Cochise and Greenlee Counties, Arizona, were infested. Increased survey efforts in Maricopa and Pinal Counties, same State, revelaed many infestations in areas where eradicative treatments had been applied for this pest.

In NEW MEXICO, unusually general, heavy infestations were found in Eddy County cotton fields. The heaviest infestations were found in southern Eddy County, becoming lighter to the north. Larvae were found in cotton fields in southern Eddy County in July, which indicated a possible buildup. Pink bollworm appeared in the coastal bend area of TEXAS in the summer and infestations were heavy by the latter part of the season. This insect also built up to heavy numbers in the trans-Pecos area of Texas. Infestations in OKLAHOMA showed a general increase over the past year based on gin-trash and lint-cleaner inspections. Of the 36 counties inspected, one was negative, 25 lightly infested (fewer than 1 per 100 bushels) and 10 showed medium infestations (1-100 larvae per bushel). Surveys indicated that pink bollworm populations increased substantially in LOUISIANA and ARKANSAS. In Louisiana, only 31 larvae were found in four parishes during the entire 1962 season; however, in 1963 pink bollworm was found in 17 parishes with nearly as many larvae found in De Soto Parish alone as were found in the entire State the preceding year. In Arkansas, 302 larvae were found in 21 counties during the year, the highest number of larvae since 1958. In 1962, only 2 pink bollworm larvae were found in one county. Gin-trash, lint-cleaner and light-trap inspections in MISSOURI, NEVADA and CALIFORNIA were negative in 1963.

COTTON SQUARE BORER (Strymon melinus) was noted feeding on cotton in MISSOURI and was a minor pest locally in TEXAS. Occasional larvae were also found in Eddy, Chaves and Dona Ana Counties, NEW MEXICO, during the summer, and many of these larvae were parasitized. EUROPEAN CORN BORER (Ostrinia nubilalis) infestations were common in fields of late cotton during the latter part of the season in MISSOURI. Larvae were observed in both stalks and bolls and, in several instances, were observed in bolls, apparently as secondary invaders following injury by bollworms. Larvae of a PYRALID MOTH (Noctuelia rufofascialis) lightly damaged cotton squares in the south central area of TEXAS in 1963.

CABBAGE LOOPER (Trichoplusia ni) was present early in the season in CALIFORNIA, but it was not a problem until midseason. Fairly heavy populations persisted in cotton throughout the harvest season. Large numbers of larvae occurred in nearly all areas of ARIZONA, and controls were necessary in most areas. Parasites and disease aided in control efforts, but these were unable to prevent heavy damage in many areas. In NEVADA, populations began increasing in Nye County fields in late September and heavy infestations, which developed during October, aided in defoliating fields prior to picking. Localized infestations caused concern in several areas of TEXAS, but infestations were not generally distributed. Cabbage looper was observed on cotton in OKLAHOMA and MISSOURI. It was a problem from time to time throughout the growing season in GEORGIA. Infestations seem to be coming a bit earlier each year in that State. Cabbage looper was more of a general problem in NORTH CAROLINA than usual. However, it was still not a serious problem in most fields. Reports of heavily infested fields in Nash and Cumberland Counties were received during the first week of August and serious defoliation was observed in an area of Robeson County during the third week of August.

BEET ARMYWORM (Spodoptera exigua) infestations were light to heavy in GEORGIA, with most being light to moderate. This insect has been found on cotton from southwest to north Georgia. It has not been reported on cotton from northeast, southeast or south central Georgia. Infestations in northwest and north Georgia were very light. Beet armyworm was of some concern to cotton growers in a few of the central ALABAMA counties in 1963. This pest has not caused the damage that was feared it would when it was first recorded on that crop in 1962 in one county. A few specimens were found on cotton during the season in MISSISSIPPI, mostly in August and September. Beet armyworm caused some concern in the west TEXAS area, but it was greatly reduced compared with the 1962 infestation. Spotted populations were found in central ARIZONA and some damage was noted, particularly in Maricopa and Pinal Counties. A few controls were applied, but in most instances, controls for other insects also reduced economic levels of this species. Some late season occurrence of beet armyworm was noted in the San Joaquin Valley of CALIFORNIA.

Large numbers of GRANULATE CUTWORM (Feltia subterranea) eggs were found on cotton during June and July in the north delta area of MISSISSIPPI. These eggs were misidentified as Heliothis spp. by cotton scouts and in many cases chemical controls were initiated. The larvae of Feltia spp. were not found damaging cotton during the season. Scattered infestations of several CUTWORMS required controls in the south TEXAS area early in the season, and cutworms were of minor importance in ALABAMA.

SALT-MARSH CATERPILLAR (Estigmene acrea) increases to above normal populations in September and October in ARIZONA caused considerable damage to cotton. Some fields in Pinal County were harvested early because of the extreme amount of damage. The pest was also fairly heavy on cotton in Imperial County, CALIFORNIA. Salt-marsh caterpillar was a minor pest which occurred in localized areas of TEXAS, but it did not cause general damage over the State.

A LEAF ROLLER (Platynota stultana) occurred in light to medium, local infestations in the desert cotton plantings of CALIFORNIA, and in the San Joaquin Valley in areas adjacent to rose-growing plots.

Light infestations of COTTON LEAF PERFORATOR (Bucculatrix thurberiella) appeared in Maricopa and Pinal Counties, ARIZONA, in mid-July. Rapid increases in August and September required some control measures. Fairly heavy populations also developed in the desert areas of Imperial and Riverside Counties, CALIFORNIA. Only an occasional larva was noted in Dona Ana County, NEW MEXICO, cotton fields in October.

CELERY LEAF TIER (Udea rubigalis) and U. profundalis were local problems in CALIFORNIA cotton fields.

GARDEN WEBWORM (Loxostege similalis) infestations caused concern in central and west central TEXAS as well as west Texas. Populations in OKLAHOMA increased to damaging numbers in the southwest and west central areas in late June and early July. Considerable defoliation of young cotton occurred. The pest was about normal for the year in ARKANSAS, and a few spot treatments were made. It was also observed feeding on cotton in MISSOURI.

COTTON LEAFWORM (Alabama argillacea) infestations were found in cotton fields near Solomon in Graham County, ARIZONA, on September 16. Although populations were heavy, it appeared too late to cause much economic damage. However, NEW MEXICO populations built up rapidly in most of the cotton-growing areas of the State during August, September and October. Many fields which did not receive treatments in Lea County, New Mexico, were completely defoliated. This was the first general infestation in New Mexico since 1957. Cotton leafworm caused considerable defoliation of cotton in TEXAS in the coastal bend area, and locally heavy infestations were reported in far western areas. In OKLAHOMA, the heaviest infestations in three years caused extensive defoliation in north central, central and south central areas. Lighter defoliation was inflicted in other areas of Oklahoma. In most cases defoliation helped the picking process and did not reduce the yield. Infestations were present from mid-August to late September. Cotton leafworm was more abundant in ARKANSAS than it had been for many years. The first specimen was taken August 9. Light, scattered infestations occurred in MISSOURI during the latter part of the season, but no economic damage occurred. Infestations were reported from extreme south GEORGIA in October. Usually, when cotton leafworm infestations occur in Georgia, they occur late in the season and are actually beneficial.

COWPEA APHID (Aphis craccivora) was extremely abundant on cotton seedlings in the San Joaquin Valley of CALIFORNIA. Beneficial insects helped in reducing populations. Considerable stunting resulted where populations persisted. COTTON APHID (Aphis gossypii) populations were below normal throughout ARIZONA and light, spotted infestations occurred in Clark and Nye Counties, NEVADA, in the fall. Cotton aphid was generally light in TEXAS and OKLAHOMA, but a few scattered

fields in most areas of Texas required some control measures. Similar conditions occurred in ARKANSAS and MISSOURI. Infestations of cotton aphid in GEORGIA were light to heavy, with most infestations being moderate to heavy. Cotton aphid was a minor problem in ALABAMA. Undetermined species of black APHIDS and ANTS seem to be increasing in the Coastal Plain area of SOUTH CAROLINA more so than at any time since certain chlorinated hydrocarbons were used in the mid- to late 1940's. A much more serious problem could be developing. CORN ROOT APHID (Anuraphis maidiradicis) and another APHID (Smynthurodes betae) were present on the roots of cotton in a number of fields in Northampton County, NORTH CAROLINA, on July 18. S. betae was not known to be a pest of cotton previously in the State.

A plant bug complex, including COTTON LEAFHOPPER (Psallus seriatus), TARNISHED PLANT BUG (Lygus lineolaris), RAPID PLANT BUG (Adelphocoris rapidus) and Neurocolpus nubilus, was found infesting as much as 80 percent of the scouted fields in MISSOURI at one time during the season. Five percent of the scouted acreage had infestations higher than the level where control is recommended in Missouri; however, only 0.8 percent of the scouted acres were reported treated. Tarnished plant bug, cotton fleahopper, rapid plant bug and N. nubilus were present during the year in ARKANSAS, but all were of minor importance. Tarnished plant bug and cotton fleahopper are the principal plant bugs in Arkansas, and N. nubilus is more numerous in the northeast area of the State than it is in other areas. Less than one percent of Arkansas cotton fields were treated for plant bugs. Cotton fleahopper was also present on cotton in OKLAHOMA. Populations of cotton fleahopper were heavier than in 1962 in most areas of TEXAS, with extremely dry conditions causing early migration to cotton fields. Cotton fleahopper began appearing in NEW MEXICO cotton fields in relatively large numbers about the third week of June in the southern counties, and many growers treated. Light local infestations of a FALSE CHINCH BUG (Nysius sp.) were reported on cotton in Kern County, CALIFORNIA.

A BLACK COTTON FLEAHOPPER (Spanogonicus albofasciatus) appeared on cotton in light to medium numbers early in the season in ARIZONA. Heavier infestations continued to plague growers in central Arizona during June and early July. It began appearing in NEW MEXICO cotton fields in relatively large numbers about the third week of June in southern counties. Many growers treated. S. albofasciatus was collected on cotton in Jefferson County, ARKANSAS, on September 28; a new State record.

LYGUS BUGS (Lygus spp.) were very prevalent in CALIFORNIA cotton from early in the season. Many severe infestations developed in all cotton-growing areas. Lygus bugs were among the most damaging pests of cotton in ARIZONA, particularly during the early and midstages of the cotton season. The peak populations corresponded with the cutting of alfalfa. Damage occurred in Arizona until the first of October. Lygus bugs began to increase in Nye County, NEVADA, in late July and early August, but treatments were generally not begun until late August with populations at lowest levels in several years. In Clark County, lygus bugs were not a problem. In NEW MEXICO, lygus bugs began appearing in cotton fields in relatively large numbers about the third week of June in southern counties. Many growers treated their fields for these pests. Lygus bugs were minor pests in ALABAMA and TEXAS.

STINK BUGS were present in all cotton-growing areas of CALIFORNIA. Infestations were spotty and heaviest in Imperial County. PERIODICAL CICADAS oviposited in stems of cotton in isolated cases in ARKANSAS.

LEAFHOPPERS varied from light to heavy in various locations over the cotton-growing areas of CALIFORNIA. The heaviest populations were in the desert areas of Riverside and Imperial Counties. Empoasca sp. populations were above those of 1962 in Clark County, NEVADA, but below the 1961 levels. Only two fields were heavily damaged in August. In MISSOURI, Oncometopia undata and other species of leafhoppers were noted feeding on cotton. WHITEFLIES were abundant in some fields of cotton in Kern County, CALIFORNIA.

Damage by THRIPS was more noticeable in the lower Coastal Plain area of SOUTH CAROLINA than in past years, and infestations in GEORGIA were light to heavy with most moderate to heavy. Thrips were regarded as minor pests in ALABAMA, ARKANSAS and OKLAHOMA, but infestations of several species were generally light over TEXAS with scattered fields in most areas requiring some controls. In the Tallulah area of LOUISIANA, thrips damage was rather severe in untreated fields. Controls became rather general in the area. Thrips, mainly TOBACCO THRIPS (Frankliniella fusca), were extremely heavy in late-planted cotton fields in MISSOURI where emergence was delayed. Treatments were applied for thrips control to approximately seven percent of the scouted acreage. The majority of treatments in Missouri were on late-planted cotton. Frankliniella sp. caused heavy damage to seedling cotton in several Clark County, NEVADA, fields in May. In CALIFORNIA, thrips in general were quite heavy on cotton in Imperial County and on early cotton in other areas. Leucothrips piercei was medium to heavy in Imperial and Riverside Counties, and CITRUS THRIPS (Scirtothrips citri) was light in Imperial County.

SEED-CORN MAGGOT (Hylemya platura) populations were heavy on seedling cotton in Firebaugh, Fresno County, CALIFORNIA, and it was observed on cotton in MISSOURI. Unspecified MAGGOTS were reported damaging cotton seed rather heavily in Swisher County, TEXAS.

SPIDER MITES (Tetranychus spp.) began increasing in NORTH CAROLINA cotton fields earlier than in 1962. Reports of infestations from both the Piedmont and Coastal Plain areas began in early July. Infestations were greater than the preceding year in all cotton-growing areas of North Carolina. Damage in the Piedmont was the highest observed since 1955 and was due to early and uniform infestations. Many of the smaller fields on the Coastal Plain were observed to be heavily infested during August. Spider mites were the major threat to cotton in the Piedmont of SOUTH CAROLINA. They appeared to be more important than in past years. Dry conditions in July and August tended to increase damage. Infestations in GEORGIA were light to heavy, with most being light to moderate. Infestations in ALABAMA were somewhat serious in the northern areas, especially on Sand Mountain and in the Tennessee Valley. Isolated growers experienced some resistance to recommended miticides. Spider mites were also a problem locally in the cotton-growing area of TENNESSEE.

Various species of MITES occurred in a larger percent of ARKANSAS fields in 1963 than in 1962 during all weeks except the third and fourth week of June. The percentage of fields with mites present in 1963 exceeded the 5-year average in all weeks except the third week of June. Fields treated for mites in Arkansas exceeded one percent in only one week. Infestations of spider mites in MISSOURI, largely STRAWBERRY SPIDER MITE (Tetranychus atlanticus), gradually increased during July, but became severe in isolated fields only. Spot and strip treatments were effective in preventing spread of many early infestations. T. cinnabarinus was extremely difficult to control in the Brazos River bottoms area of central TEXAS. This mite is spreading more each year in that State and is increasingly more difficult to control. Other Tetranychus spp. were present in varying populations over Texas, with some scattered fields requiring control.

Spider mites were only of minor importance in most cotton-growing areas of NEW MEXICO. Spotted, light to heavy infestations were reported in Chaves and northern Eddy Counties. In NEVADA, populations of Tetranychus sp. were very light on seedling cotton, but it became heavy during late September and October in Clark County. Infestations were heavy on seedling cotton from late May through June and were medium to heavy in September and October in Nye County.

Infestations of MITES in CALIFORNIA began in June on cotton in the Imperial Valley, Imperial County, and infestations began showing and progressing in other cotton-growing areas. TWO-SPOTTED SPIDER MITE (T. telarius) and T. cinnabarinus were serious during June on cotton. Treatment reduced the populations and, in some cases, cotton outgrew the mites; however, control was a continuing problem

in California. Large cotton and poor coverage with recommended materials were the primary reasons for poor control Strawberry spider mite (T. atlanticus) was light to medium in areas of the San Joaquin Valley of California. Some defoliation resulted.

Insect pests of cotton in FLORIDA did not cause any special problem, and they were kept under control by the appropriate insecticides. Cotton acreage is decreasing in Florida.

Snowfall was widespread and locally heavy, with accumulations of 6 to 12 inches in parts of east-central Oklahoma and 2 to 9 inches in northwestern Arkansas. St. Louis, Missouri, reported 6 inches of snow on Monday evening, the 9th. In the Northeast, snowfall ranged from 2 to 5 inches in northern and western Maryland, up to 19 inches at Newport, Vermont, and 17 inches at Boonville, New York. Falls generally ranged from 12 to 15 inches in New York's Mohawk Valley and southern Adirondack region, and 5 to 15 inches in northern New England. A combination of wind and glaze damaged utility lines in southern New England. Damaging winds occurred in middle Atlantic coastal areas on the 10th.

The stormy weather east of the Rockies was followed by a brief cool spell, with freezing as far south as central Texas after which warm, sunny weather was the rule until another frontal system brought widespread, mostly light to moderate showers during the weekend. Occasional strong winds in the Great Plains whipped up dust in western Kansas and eastern Colorado.

In the Pacific Northwest, almost daily precipitation improved the mountain snowpack with several stations in the Cascades reporting the greatest depths of the season to date. In Washington, depths are 180 inches at 3,000 feet and 230 inches above 5,000 feet.

The week was considerably colder than normal west of the Contiental Divide, about normal in the lower Great Plains, and warmer than normal elsewhere. Weekly averages ranged up to 8° below normal in the Far West, and 10° to 13° above in the northern Great Plains. In the East, averages were below normal in Maine, and above normal elsewhere with departures ranging from 2° or 3° in the North to as much as 7° in southern Florida. In Arizona on the 9th, freezing occurred as far south as the Yuma area, and Phoenix reported a late season low of 29°.

Weekly precipitation totals were well above normal from the lower Mississippi Valley northeastward. Two to 5-inch totals were common in this area. Soil moisture was replenished in much of the eastern portion of the Corn Belt. Precipitation was very light and scattered in the Great Plains and virtually nil in the Far Southwest. In northern areas west of the Continental Divide, weekly totals ranged from 1 to 3 inches along the coast and generally about 0.20 to 0.50 inch inland. (Summary supplied by U.S. Weather Bureau).

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 13 March 27, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 March 27, 1964 Number 13

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL adults active in areas of Nevada, Colorado and North Carolina, and larvae active in North Carolina, Virginia and Delaware. Larvae heavy in alfalfa locally in Henry and Charlotte Counties, Virginia. A WEEVIL (*Hypera brunneipennis*) increasing on alfalfa in most areas of Yuma County and some areas of Maricopa County, Arizona. (p. 237).

MELON APHID increasing rapidly on vegetable crops in Yuma and Maricopa Counties, Arizona. (p. 240).

TENT CATERPILLARS continue to hatch in several central counties of Texas. Infestations this year appear to be considerably worse than those of 1963. EASTERN TENT CATERPILLAR larvae noted in Arkansas and Florida. (p. 241).

CHICKEN MITE reported heavy on chickens in Mayes County, Oklahoma. (p. 242).

Third KHAPRA BEETLE infestation of recent weeks found in Yuma area of Arizona. (p. 244).

SOME FIRST RECORDS OF THE SEASON

ALFALFA WEEVIL adults and/or larvae in Nevada, Colorado, North Carolina, Virginia and Delaware; GREEN PEACH APHID in Oregon and Colorado; PEAR PSYLLA in Oregon; NORTHERN HOUSE MOSQUITO larvae in Delaware; COMMON CATTLE GRUB adults in De Baca County, New Mexico; LONE STAR TICK in Oklahoma.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 243).

Summary of Insect Conditions in the United States - 1963

Truck Crop Insects

Eggplant, Pepper, Potato and Tomato Insects. (p. 247).
Crucifer Insects. (p. 253).
Bean, Pea and Other Legume Insects. (p. 257).
Asparagus and Onion Insects. (p. 260).
Beet, Sugar Beet, Spinach and Chard Insects. (p. 261).
Artichoke and Lettuce Insects. (p. 263).
Cucurbit Insects. (p. 264).
Carrot and Celery Insects. (p. 266)
Sweetpotato Insects. (p. 266).
Strawberry Insects. (p. 267).
Bramble Insects. (p. 268).
Miscellaneous Truck and Garden Crop Insects. (p. 269).

Reports in this issue are for week ending March 20, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 23

Strong northerly winds brought cold arctic air into the northern Great Plains at the beginning of the week. Temperatures over northern Minnesota dropped far below zero. International Falls, Minnesota, registered 15° below zero Tuesday morning. Moderate temperatures prevailed over most of the rest of the Nation. Gusty winds, sometimes exceeding 40 m.p.h., raised dust clouds in southern California, Arizona, New Mexico, and over parts of the northern Great Plains. Clear skies prevailed over the southern half of the Nation. As the Far Southwest registered record breaking high temperatures, arctic air moved through the Northeast. Showers occurred in the Far Northwest with snow in the higher elevations of Washington, Oregon, Idaho, and Montana. By Wednesday a new storm was getting organized over the northern and central Great Plains. Snow fell over the northern Plains and upper Mississippi River Valley and thunderstorms spread through Oklahoma and Texas on Wednesday and eastward to the Atlantic Ocean on Thursday. New Orleans, Louisiana, registered 2.49 inches of rain on Thursday. Winds continued in the western Plains, reaching 42 m.p.h. at Pueblo, Colorado.

Although parts of Florida, California, and Texas registered temperatures in the 80's on Friday, March 20, blizzard conditions, heavy snow and biting winds prevailed throughout the Midwest. This storm, as it moved eastward, brought heavy snow to parts of Pennsylvania, Maryland, Delaware, New York, and New England. Baltimore, Maryland, received 10 inches of new snow late Saturday evening. As the storm moved out to the Atlantic Ocean, more severe weather developed in the Great Basin and the Rocky Mountains. Eight inches of snow fell at Salt Lake City on Sunday. By Monday morning, Billings, Montana, had received 10 inches of new snow and by noon Flagstaff, Arizona, had accumulated 9 inches. The temperature at Cutbank, Montana, dropped to 11° below zero Monday morning, March 23. Strong gusty winds caused blowing and drifting snow, clogging highways and closing schools. Severe dust storms occurred in the dry areas from New Mexico to Nebraska. At the end of the week, blizzard conditions - strong winds, falling temperatures, and the air filled with snow - continued over parts of the Rocky Mountains and the northern Great Plains. Winter still prevailed over much of the Nation.

Precipitation exceeded 1 inch at Astoria, Oregon, in the western portion of Washington, over parts of the central and southern Great Plains, along the Gulf of Mexico, and over northeastern Maryland and nearby portions of Pennsylvania and New Jersey. Most other areas received less than 1 inch. No important precipitation fell over most of the Great Basin and over the Rocky Mountains except in the extreme north.

Temperatures averaged above normal from Red Bluff and San Francisco, California, southeastward to Yuma and Phoenix, Arizona, over the northern Plateau from Havre, Montana, to Denver, Colorado, and Goodland, Kansas, and over the southern half of the Florida Peninsula. They averaged below normal over the rest of the Nation. Temperature departures ranged from -8° at Pocatello, Idaho, to +4° at Key West, Florida. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - NEVADA - Adults active in southern Washoe County. (Bechtel). COLORADO - Adult emergence slow in Arkansas River Valley area of Otero County. No adults observed. (Schweissing). No adult emergence noted in northeastern area or in Weld and Larimer Counties. Alfalfa showing very little growth. (Jenkins). NORTH CAROLINA - Larvae and adults averaged 104 and 8, respectively, per 50 sweeps in 10 alfalfa fields in vicinity of Wake Forest. Larvae ranged 50-210 per 50 sweeps. Alfalfa 3-4 inches high and did not receive fall treatment. (Mount). VIRGINIA - Larvae heavily infesting alfalfa locally near Martinsville, Henry County; ranged 5-8 per tip and most in first stage. Alfalfa now 3-4 inches high. No adults detected. (Pienkowski, Mar. 16). Severe larval infestations detected on 2 farms about 5 miles apart in Red Oak section of Charlotte County. (Morton, Mar. 18). Larvae expected to appear in other areas of State soon, possibly much earlier than usual if above-normal temperatures continue. (Tarpley). TENNESSEE - First and second instars scattered in alfalfa over State. (Mullett). DELAWARE - First-stage larvae in New Castle County alfalfa. (Burbutis).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Increasing on alfalfa in nearly all areas of Yuma County and in some areas of Maricopa County. Some pupation occurring on Yuma Mesa, Yuma County. Many parasitized larvae found in all areas. (Ariz. Coop. Sur.).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Few adults noted in flight in Dallas County. (Shuler, Grandberry).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Adults about 1 per 3 sweeps in crimson clover-vetch mixture in Dallas and Montgomery Counties. (Shuler et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Infestations general on alfalfa in Yuma County and in Buckeye and Mesa areas of Maricopa County; larvae 20-40 per 100 sweeps. (Ariz. Coop. Sur.). ALABAMA - Numerous adults in flight and laying eggs on clovers in Dallas County. (Shuler et al.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Continues low throughout northwest. (Okla. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Averaged 10 per 100 sweeps on alfalfa in north Gila Valley, Yuma County. (Ariz. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Increasing somewhat, although only light to medium infestations found on alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). NEVADA - Very light, spotted populations on alfalfa in Virgin Valley, Clark County, and only occasional specimens found on alfalfa in southern Washoe County. (Bechtel). OKLAHOMA - None found in east central area alfalfa. (Okla. Coop. Sur.). ARKANSAS - Populations remain at about 5-10 per square foot in vetch in northwest. (Ark. Ins. Sur.). FLORIDA - Increasing on Hairy Peruvian alfalfa at Gainesville; approximately 1,800-2,500 per 200 sweeps. (Mead). DELAWARE - Small nymphs present on alfalfa in New Castle County. (Burbutis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Only occasional specimens found in alfalfa in Virgin Valley, Clark County. (Bechtel). ARIZONA - Light on alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). OKLAHOMA - Occasionally noted in some overwintering alfalfa in east central area and in Garvin County, south central area. (Okla. Coop. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Light on old, established stands of alfalfa in north Gila Valley, Yuma County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Averaged about 1 per 3 sweeps in crimson clover-vetch mixture in Dallas and Montgomery Counties. (Shuler et al.). OKLAHOMA - Light on alfalfa in east central area. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Continue low on alfalfa in Yuma and Maricopa Counties; adults averaged 14 per 100 sweeps. Very few nymphs beginning to appear. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Averaged 1 per 5 sweeps in crimson clover-vetch mixture in Dallas and Montgomery Counties. (Shuler et al.). FLORIDA - Adult counts 8 per 200 sweeps on alfalfa and 1 per 100 sweeps on blue lupine at Gainesville, Alachua County. (Mead).

LEAFHOPPERS - FLORIDA - Adult counts per 100 sweeps on flowering blue lupine at Gainesville, Alachua County, were 6 Cuerna costalis, 3 Agallia constricta, and 1 Empoasca sp. (Mead).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Medium to heavy on alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Continues noneconomic throughout State; negative in many areas. Some reproduction noted in Perkins area of Payne County on warm days. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARIZONA - Light to medium in fields of grain in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light, spotted infestations of only minor importance in barley fields in southern counties. (N. M. Coop. Rpt.).

A GRASS BUG (Arhyssus scutatus) - CALIFORNIA - Adults heavy in field grasses in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Adults 7 per 100 sweeps on rye at Gainesville, Alachua County. (Mead).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Overwintered borer population in New Castle County averaged, for 3 fields, 32 borers per 100 stalks on March 16; percent reduction from estimated fall population 52 percent. (Burbutis).

A SCARAB (Euphoria sepulchralis) - FLORIDA - Lightly infesting ears of corn at Goulds, Dade County. (Knowles, Mar. 12).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Continues to cause considerable concern to residents in south and southwest areas; controls applied by many landowners. (Tex. Coop. Rpt., Meisch).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Light on wheat in Woods, Harper, Woodward and Dewey Counties; ranged 1-20 per linear foot, but one field in Harper County had 150 per linear foot. (Okla. Coop. Sur.). ARIZONA - Few light infestations in Yuma County alfalfa, particularly on Yuma Mesa. (Ariz. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - CALIFORNIA - Adults light to medium on leaves of range grasses in Coalinga, Fresno County. (Cal. Coop. Rpt.).

FRUIT INSECTS

LESSER PEACH TREE BORER (Synanthedon pictipes) - ALABAMA - Serious damage appearing on isolated limbs and tree trunks of peaches as sap flow begins and larval feeding is more intense in Geneva and other counties. (Reynolds et al.).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Medium in almond trees in Madison, Yolo County. (Cal. Coop. Rpt.). OREGON - Not yet moving from hibernaculae in Jackson County pear orchards (feeding on buds on March 9 of last year). (Berry).

A BLASTOBASID MOTH (Holcocera iceryaeella) - CALIFORNIA - Larvae medium on citrus in Salinas, Monterey County, and light locally on orange trees in Oxnard, Ventura County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - OREGON - Eggs noted hatching February 24 and now on developing buds of peach and pear trees in Jackson County. (Berry). COLORADO - Beginning to hatch in Mesa County. (Bulla).

APHIDS - DELAWARE - Nymphs found on apple buds in Kent County March 19. (MacCreary).

PEAR PSYLLA (Psylla pyricola) - OREGON - Adults noted actively laying eggs on pear twigs in Jackson County. Egg laying very heavy in some orchards and appears to be greater than last year. (Berry).

Citrus Insect Situation in Florida - Mid-March - CITRUS RUST MITE (Phyllocoptruta oleivora) on leaves infested 52 percent of groves (norm 60 percent); 33 percent economic (norm 35 percent). Citrus rust mite on fruit infested 42 percent of groves (norm 48 percent); 22 percent economic (norm 29 percent). Population below normal. Further decrease into low range expected. Highest districts west, north and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 31 percent of groves (norm 21 percent); 16 percent economic (norm 8 percent). Population higher than in March of prior years, but only scattered infestations important. Slight increase expected. Highest districts central and east. CITRUS RED MITE (Panonychus citri) infested 46 percent of groves (norm 64 percent); 21 percent economic (norm 36 percent). Below average abundance but important in scattered groves. Increase expected. Highest districts north,central and west. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) very low in all districts. PURPLE SCALE (Lepidosaphes beckii) infested 83 percent of groves (norm 80 percent); 7 percent economic (norm 15 percent). GLOVER SCALE (L. gloverii) infested 72 percent of groves (norm 26 percent); 11 percent economic (norm 1 percent). CHAFF SCALE (Parlatoria pergandii) infested 80 percent of groves (norm 42 percent); 16 percent economic (norm 1 percent). YELLOW SCALE (Aonidiella citrina) infested 42 percent of groves (norm 9 percent); 9 percent economic (norm 1 percent). BLACK SCALE (Saissetia oleae) infested 14 percent of groves (norm 17 percent); 6 percent economic (norm 4 percent). Scale populations will increase gradually. Only a few scattered infestations will be important. Immature WHITEFLY populations continued much above average. Lower larval population forecast which will coincide with sharp increase in adult and egg populations during March and April. Populations of APHIDS increased sharply in March and will continue to increase through April. Some important infestations will occur in all districts but generally will be lighter and less numerous than average. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

OBSCURE SCALE (Chrysomphalus obscurus) - TEXAS - Infestations on pecan trees in Brazos County appear to be increasing (Randolph).

GREEDY SCALE (Aspidiotus camelliae) - CALIFORNIA - Heavy on olive trees in Tracy, San Joaquin County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severe on pear at Glen St. Mary, Baker County. (Collins, Mar. 13). OREGON - Infestations more than normal in Jackson County fruit trees. (Berry).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy on olive trees in Tracy, San Joaquin County. (Cal. Coop. Rpt.).

FIG SCALE (Lepidosaphes ficus) - CALIFORNIA - Adults medium on fig trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SOFT SCALES (Lecanium spp.) - COLORADO - Crawler activity noted in Delta County. (Bulla).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Nymphs and adults heavy on almond trees in Ripon, San Joaquin County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Moving into developing buds in Jackson County pear orchards; heavy in some orchards. (Berry).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Eggs more noticeable in Jackson County Anjou pear orchards than in several years. (Berry).

PEAR RUST MITE (Epitrimerus pyri) - OREGON - Moving from overwintering quarters in bark scales to developing buds in Jackson County pear orchards. (Berry).

TRUCK CROP INSECTS

MELON APHID (Aphis gossypii) - ARIZONA - Rapidly increasing in vegetable crops of Yuma and Maricopa Counties. Medium in nearly all areas. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Increasing slowly in lettuce fields of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

AN APHID (Acyrthosiphon barri) - ARIZONA - Light on lettuce fields in the Dome Valley of Yuma County. (Ariz. Coop. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Increasing on weed hosts near cantaloup fields in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - Adults active in mid-February in Forest Grove area, Washington County. (Getzendarer).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Few adults noted in flight around gardens and clovers in Dallas, Lowndes and Autauga Counties. (Shuler et al.).

A CUTWORM - OKLAHOMA - Undetermined species heavy in gardens in Stephens County. (Okla. Coop. Sur.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light to medium damage to all of 200 celery plants inspected at Sanford, Seminole County. (Desin).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco in the plant bed in southern area. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco in the plant bed in southern area. (Johnson).

COTTON INSECTS

EARWIGS - TEXAS - Heavy, local populations of unspecified species damaging cotton in Cameron County. Counts one per 4 inches in a 20-acre field of cotton that followed fall grain. (Tex. Coop. Rpt., Stephens).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Approximately 6 acres of 7-year-old pine planting completely destroyed in west Crenshaw County. At another area in Covington County, small pines (4-6 inches) in groups of 2-4 trees at scattered points in large timber company area damaged and killed. (Stephenson, Mar. 13).

PINE APHIDS - ALABAMA - Unspecified species becoming heavy on young pines in Baldwin County. (Wilson).

A SPIDER MITE (Oligonychus coniferarum) - CALIFORNIA - Eggs, nymphs and adults medium on juniper trees in Fullerton, Orange County. (Cal. Coop. Rpt.).

TENT CATERPILLARS (Malacosoma spp.) - TEXAS - M. disstria and Malacosoma sp., probably texana, continue to hatch in several central counties. Infestations this year appear to be considerably worse than those of 1963. (Tex. Coop. Rpt., Meisch).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Young larvae collected from ornamental peach in Faulkner County (central). This is first report of season. (Ark. Ins. Sur.). FLORIDA - Full-grown larva noted on ground at Gainesville, Alachua County; possibly seeking pupation site. (Hetrick, Mead).

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA - Active in Yankton County. (Hintz). KANSAS - Males flying in moderate numbers during past 2 weeks in Riley County. No females seen. (Thompson, Peters).

A COSMOPTERIGID MOTH (Periploca ceanothiella) - CALIFORNIA - Medium in twigs of ceanothus in Paso Robles, San Luis Obispo County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Macrosiphum rosae ranged light to heavy on isolated roses in Dallas and Lee Counties. Syrphid flies laying numerous eggs among aphids. (Shuler et al.). Clumps of Longistigma caryae eggs (50-100) on ornamental oaks on lawns in Lee County have now hatched; nymphs feeding on branches. Few syrphid fly larvae feeding on aphids. (McQueen). OKLAHOMA - Unspecified species light on landscape plantings in Garvin County area. (Okla. Coop. Sur.). CALIFORNIA - Neophyllaphis podocarpi nymphs and adults heavy on Podocarpus macrophylla in Fullerton, Orange County. (Cal. Coop. Rpt., Mar. 6).

A PSYLLID (Trioza magnoliae) - FLORIDA - Adults common on foliage of redbay (Persea borbonia) at Gainesville, Alachua County. (Hetrick, Mead).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on lilac bushes in Lafayette, Contra Costa County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - VIRGINIA - Heavy on shrubs and trees at a location in Richmond (Rowell, Mar. 16) and infesting mulberry at a location in Dragon Run watershed, King and Queen County (Tarpley, Sedivy; Mar. 11). Det. by M. Kosztarab. (Tarpley).

CITRUS MEALYBUG (Pseudococcus citri) - VIRGINIA - Heavy on Diffenbachia sp. at a location in Blacksburg, Montgomery County (Tarpley, Mar. 9), and undetermined house plants at a location in Rileyville, Page County (Tarpley, Saunders; Mar. 5). Det. by M. Kosztarab as Planococcus citri. (Tarpley).

A MEALYBUG (Rhizoecus pritchardi) - CALIFORNIA - Medium on African violets in Visalia, Tulare County. (Cal. Coop. Rpt.).

SOFT SCALES - CALIFORNIA - Toumeyella pinicola heavy on Pinus radiata in Millbrae, San Mateo County. Lecanium pruinosum medium on trumpetvine locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

LESSER BULB FLY (Eumerus tuberculatus) - CALIFORNIA - Larvae and pupae heavy in narcissus in Hanford, Kings County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - ALABAMA - Observed feeding and causing considerable damage to cherry-laurel during winter throughout central part of State. (McQueen).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Heavy and damaging azaleas in southern Baldwin County. Egg, nymphs and adults plentiful. (Oates, Wilson).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Adults heavy on Fatsia japonica nursery stock in Thousand Oaks, Ventura County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - First-stage larvae of Culex pipiens pipiens noted in wooded area in northern New Castle County. (F. Murphey). TEXAS - In Jefferson County, adults noted around lights on some warmer nights; also observed in sheltered locations during the day. Aedes sollicitans, Culiseta inornata, Anopheles quadrimaculatus, Anopheles crucians and Culex spp. have been noted. (Jeff. Co. Mosq. Control Comm.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts continue low on cattle in Payne County. (Okla. Coop. Sur.).

NORTHERN CATTLE GRUB (Hypoderma bovis) - NORTH CAROLINA - Present in backs of 2 of 16 young cows and one of 24 heifers examined in Wake County, March 18. One grub in second stage; other 2 had been in backs about 2 weeks. Group of animals at same location had average of 4.9 grubs per head on March 8, 1963. (Mount).

COMMON CATTLE GRUB (Hypoderma lineatum) - NEW MEXICO - Adults molesting cattle in De Baca County. (N. M. Coop. Rpt.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Ranged from 25 to more than 50 in backs of some cattle recently shipped from Loa, Wayne County, to Utah County. Few appearing in backs of cattle in herds in American Fork area of Utah County. (Knowlton).

BLACK FLIES (Simulium spp.) - FLORIDA - Simulium sp., probably slossonae, noted attacking heads and necks of chickens at Lutz (Mar. 6), and Simulium sp., probably jenningsi, troublesome to poultry at Tampa (Mar. 13), both in Hillsborough County. (O'Quinn).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - GEORGIA - Averaged 1 per square inch on 100 Hereford animals examined in Spalding County, and 6.58 per animal on 10 Hereford cattle examined in Putnam County. (Roberts, Mar. 10).

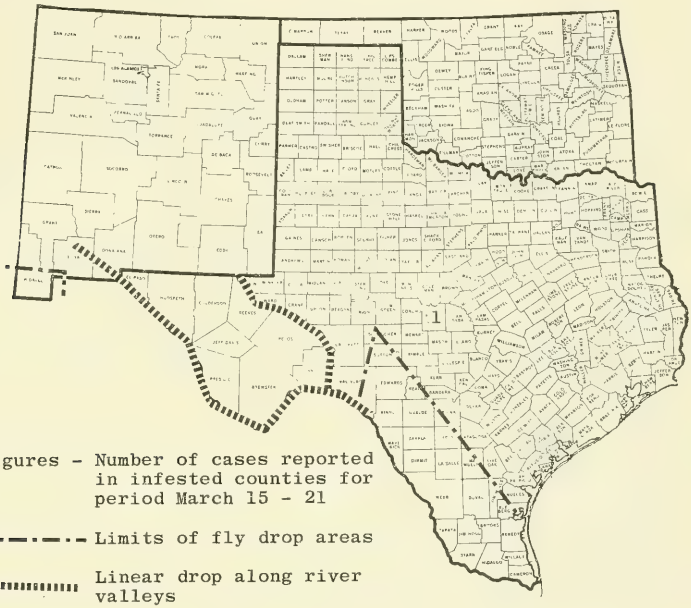
CATTLE LICE - OKLAHOMA - Several species continue moderate to heavy in southeast and south central areas; light to moderate in Payne County area. (Okla. Coop. Sur.). UTAH - Numerous in many Utah County herds; controls planned. (Knowlton).

CHICKEN MITE (Dermanyssus gallinae) - OKLAHOMA - Heavy populations reported on chickens in Mayes County (northeast). (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Light populations becoming active in Pushmataha and Latimer Counties (southeast). (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 15-21, one screw-worm case was disclosed in TEXAS; occurred in a bovine on ranch near Brady, McCulloch County. Larvae collected by practicing veterinarian; determined as 29 Phormia regina and 1 second-stage Cochliomyia hominivorax. A total of 104,663,050 sterile screw-worm flies was released during the period. Livestock producers submitted total of 129 larval samples identified as nonscrew-worm. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 15 - 21

Limits of fly drop areas

Linear drop along river valleys

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - NEVADA - Homeowner complaints increasing as movement into homes becomes more numerous in Reno-Sparks area, Washoe County. (Lauderdale). UTAH - Entering homes at Provo and American Fork, Utah County. (Knowlton). COLORADO - Complaints reported from Conejos County; also troublesome in hospital in Larimer County. (Thatcher et al.). ARIZONA - Appearing in many homes in Phoenix area, Pima County. (Ariz. Coop. Sur.). NORTH CAROLINA - Large numbers present at a Burke County location March 13, and troublesome at a Montgomery County location March 11. (Wray, Garris). VIRGINIA - Common at a Lynchburg location, Campbell County. (Rowell, Mar. 13). MARYLAND - Troublesome at a location in Rockville, Montgomery County. (U. Md., Ent. Dept.).

BOXELDER BUG (Leptocoris trivittatus) - PENNSYLVANIA - Numerous in homes and on sides of buildings at several locations in Washington County. (Udine, Mar. 13). MARYLAND - Annoyed several homeowners in Carroll County and at Baltimore. (U. Md., Ent. Dept.). VIRGINIA - Adults common in and around homes in Roanoke and in Vinton, Roanoke County; Pearisburg, Giles County; and Tappahannock, Essex County,

March 8, 9 and 10. (Rowell). NORTH CAROLINA - A nuisance in Moore County, and about several homes near Cramerton, Gaston County. (Allen, Erwin). WISCONSIN - Continues to be annoying. (Wis. Ins. Sur.).

SQUASH BUG (Anasa tristis) - NEVADA - Overwintering adults entering homes and causing concern in Reno-Sparks area, Washoe County. (Coop. Rpt.).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Causing concern in Stillwater area homes, Payne County. (Okla. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - TEXAS - Light to moderate adult numbers invading homes in Collingsworth County. (Regier). OKLAHOMA - Overwintering adults leaving hibernation quarters continue to cause concern in homes. (Okla. Coop. Sur.).

BLACK LARDER BEETLE (Dermestes ater) - PENNSYLVANIA - Troublesome at a location in Allentown, Lehigh County, all winter. Det. by J. M. Kingsolver. (Menusan).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MISSOURI - Adults swarming at location in Boone County (central). (Houser, Thomas, Wood). NORTH CAROLINA - Swarmed March 17 at a Surry County location; also reported from a Bertie County location. (Wray). GEORGIA - Light at a location in Griffin, Spalding County. (Roberts, Feb. 12).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Swarming occurring in and around buildings at several locations over State. (U. Md., Ent. Dept.).

TERMITES - VIRGINIA - Adults noted at a location in Orange, Orange County, March 7. (Tarpley, Dunlap).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - ALABAMA - Severe infestation present in home in Lauderdale County. (Pitts, Balsbaugh, Ledbetter).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Third infestation of recent weeks found in Yuma area; presumably originating from infestation reported in CEIR 14(12): 217. (Ariz. Coop. Sur.).

RED FLOUR BEETLE (Tribolium castaneum) - CALIFORNIA - Heavy in wheat and rice pellets in feedstore in San Martin, Santa Clara County. (Richardson, Alvarez).

RICE WEEVIL (Sitophilus oryzae) - TEXAS - This species, in combination with Prostephanus truncatus, causing considerable damage to stored corn in Washington County. (Tex. Coop. Rpt.; McClung).

A GRAIN BORER (Prostephanus truncatus) - TEXAS - Heavy, localized populations damaging corn in Washington County. (Tex. Coop. Rpt.; McClung).

AN ACARID MITE (Caloglyphus berlesei) - CALIFORNIA - Heavy in mixed feeds in warehouse in Kingsburg, Tulare County. (Hogan, Gilley).

BENEFICIAL INSECTS

GOLDEN-EYE LACEWING (Chrysopa oculata) - TEXAS - Heavy, localized populations present in small grain in Brazos County. (Randolph). WISCONSIN - Adults and various species of flies noted active on warmer days. (Wis. Ins. Sur.).

A LADY BEETLE (Coleomegilla maculata) - VIRGINIA - Hibernating adults found in leaves around shrubs at home in Richmond (Tarpley, Mar. 6); found under similar conditions in Tazewell, Tazewell County (Tarpley, Sisk; Mar. 12).

FLOWER FLIES - TEXAS - Larvae present in large numbers in localized small grain in Brazos County. (Randolph).

Beneficial Insects in Alabama - DRAGONFLIES, CONVERGENT LADY BEETLE (Hippodamia convergens), Coleomegilla maculata fuscilabris, FLOWER FLIES, NABIDS, A BIG-EYED BUG (Geocoris punctipes) and BROWN LACEWINGS (Micromus spp.) observed active, feeding and laying eggs in Dallas, Montgomery and Lee Counties. (Shuler et al.).

A PARASITIC BRACONID (Trioxys utilis) - WISCONSIN - This parasite of spotted alfalfa aphid (Therioaphis maculata) confirmed; parasites reared from aphids collected and maintained by University of Wisconsin researchers. (Wis. Ins. Sur.).

MISCELLANEOUS INSECTS

HOUSE FLIES - OREGON - Large numbers of adults of unspecified species infested with entomophagous fungi in laboratory at Forest Grove, Washington County. (Prescott).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Light on shoulder of State Road 2, one mile east of Malone, Jackson County, (Mar. 4); light on shoulder of State Road 277, 4.5 miles northeast of Vernon, Washington County (Mar. 6). (Tipton). Light in grass at Tallahassee, Leon County, (Johnson, Mar. 4); and light on highway shoulder at West Mulberry, Polk County (Richards, Mar. 13). These are new township records in known infested counties. (Fla. Coop. Sur.). Infested soil of 3 poplar plants in cans at nursery in Chattahoochee, Gadsden County. (Miller, Mar. 11).

Sticky-board Traps in Arizona - Average count per board in Yuma County as follows: Green peach aphid (Myzus persicae) 3.58; melon aphid (Aphis gossypii) 14.9; and beet leafhopper (Circulifer tenellus) 0.17. Twelve boards used. (Ariz. Coop. Sur.).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 3/14-20																	14							
FLORIDA																								
Gainesville 3/17			BL	1					4		1													
GEORGIA																								
Tifton 3/12-18			BL							0	1								0	0				
MISSISSIPPI																								
Stoneville 3/14-20	37-88	1.37"	MV	2													5	3			7			
			BL	1														1			7			
TEXAS																								
Waco 3/14-20			BL	4			0		2	0	2	0					15	0			6	2	2	

* BL - blacklight; I - incandescent; MV = mercury vapor ; O = other

** alf. - alfalfa; beet - garden beet and/or sugar beet; cole - cole crops (crucifers); cott. = cotton; FC - field corn; grain - small grains; leg. - legumes (unspecified); lett. - lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC - sweet corn; sol. - solanaceous plants (unspecified); soy. - soybean; TC - truck crops (unspecified or mixed); tob. - tobacco; tom. - tomato.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 234)

TRUCK CROP INSECTS

EGGPLANT, PEPPER, POTATO AND TOMATO INSECTS

Highlights:

COLORADO POTATO BEETLE is increasing in importance on potatoes and tomatoes in Pennsylvania, and was quite destructive to these crops in all sections of Maryland during 1963. The pest was more numerous on the Eastern Shore of Virginia than potato growers could recall, and was more numerous and damage greater than usual in Michigan and Utah. POTATO FLEA BEETLE ranged moderate to heavy and caused moderate to heavy damage to tomatoes in areas of Maine, and was very active and damaging to same crop in Vermont. Larval damage to potato tubers was considerably more serious in New Castle and Kent Counties, Delaware, than in 1962. The pest was abundant throughout much of Montana, with many tons of potatoes going into storage damaged by larvae. CABBAGE LOOPER was a greater problem on the Eastern Shore of Virginia than any year since 1959, and was a problem on chili peppers in New Mexico. BLACK CUTWORM was especially abundant in Virginia, with up to 25 percent of potato tubers injured in some localities. POTATO TUBERWORM was found infesting potatovines in Monroe County, Michigan, and Lucas County, Ohio, during 1963. The greatest loss from EUROPEAN CORN BORER in Alabama during 1963 was to 4,000 acres of pimento peppers in Marshall, De Kalb and Blount Counties, where larvae entered the fruit. Overall APHID populations on potatoes in Maine, by June 28, were 4 times the 1962 level and twice the 1961 level for the same date. Buckthorn aphid and potato aphid were the predominant species at that time. GREEN PEACH APHID was heavier than usual on spring potatoes in Virginia, ranged moderate to heavy on early potatoes in Weld County, Colorado, and necessitated controls during late July and August on potatoes in eastern Washington. POTATO LEAFHOPPER was considerably above normal in Maryland, causing extensive damage to potatoes, peppers and other crops in most sections, and was the most serious vegetable pest in Ohio. POTATO PSYLLID populations were the heaviest in several years in Nevada, but were markedly smaller in Wyoming than in 1962. Populations on native hosts in Colorado early in the spring were in numbers that in most years would have been a threat to potatoes; however, the weather became hot and dry and damaging populations did not develop on potatoes. PEPPER MAGGOT was serious on commercial peppers in New Jersey and in Warren, Vance and Wake Counties, North Carolina. TWO-SPOTTED SPIDER MITE caused extensive damage to tomato and eggplant in New Jersey, and unseasonably hot weather during August and September in central Washington was conducive to rapid buildup and damage on potatoes and other crops.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) populations were heavy and caused severe damage to potatoes in Saco, York County, MAINE, and an overwintered adult was seen on a potato plant in a field 5 miles south of Presque Isle, Aroostook County, on July 6. In MASSACHUSETTS, adults were present in many potato fields, with plants along margins of some fields chewed off as leaves developed. Oviposition was underway by June 14, and controls were urged. First adults of the season in RHODE ISLAND appeared in Kingston, Washington County, and in Middletown, Newport County, in mid-May. Oviposition was general by May 31 and hatching was underway by June 13. Infestation by this pest was heavier on Aquidneck Island, Newport County, than in the remainder of the State. Colorado potato beetle populations in NEW JERSEY were at the highest levels during the 1963 season than since the advent of the use of DDT. The pest is increasing in importance on potatoes and tomatoes in the eastern portion of PENNSYLVANIA. Colorado potato beetle adults were first observed feeding on

young tomato transplants in DELAWARE on April 24 in Sussex County. Several severe infestations of the beetle occurred on tomatoes in various areas of the State during June, July and August, but the majority of tomato fields were not heavily infested. Colorado potato beetle was quite destructive to potatoes and tomatoes in all sections of MARYLAND, with many commercial fields being heavily damaged. In the summer, eggplant was injured at several localities. Both broods of this potato pest were more numerous on the Eastern Shore of VIRGINIA than potato growers could recall. In early July, tremendous numbers moved out of harvested potato fields and caused some damage to tomatoes, eggplants and peppers in the area.

All reports of damage by Colorado potato beetle in MISSOURI were from the west central and northwest areas of the State during the 1963 season. Populations of the pest were higher and damage was greater than usual in MICHIGAN, but the species was generally not a problem in NORTH DAKOTA. Colorado potato beetle was numerous over a large portion of MONTANA, especially in the counties of the extreme west, and caused considerable trouble in the Corvallis area of Ravalli County. Light infestations occurred in some areas of WYOMING during the season. Adults were common on buffalo bur, highest numbers being found in Goshen and Laramie Counties. Generally, infestations were lower in Wyoming during 1963 than in 1962. Colorado potato beetle occurred in large numbers in early potato fields in Buffalo, Red Willow and Webster Counties, NEBRASKA. In COLORADO, the pest moved from weed hosts into potato fields early in the season and caused considerable foliage damage in some fields. Approximately 5 percent of the acreage in Weld County was infested. Colorado potato beetle was more abundant and/or more damaging than normal in UTAH during 1963. The pest emerged from hibernation early in May in southeastern WASHINGTON, with nearly full-grown larvae damaging potatoes and tomatoes by mid-June in the eastern portion of the State.

POTATO FLEA BEETLE (Epitrix cucumeris) was noted in moderate numbers and causing moderate damage to tomatoes in Presque Isle, Aroostook County, MAINE, in early June. Heavy populations of this chrysomelid caused heavy damage to tomatoes and other crops in Androscoggin and Sagadahoc Counties at this time, while moderate numbers caused light to moderate injury to tomatoes in Cumberland County during the same period. Light populations and light damage to tomatoes were reported in Orono, Penobscot County, Maine, during late June. Very small numbers of potato flea beetle summer-generation adults were reported from 3 potato fields in Presque Isle during early August. Potato flea beetle was very active and damaging to tomatoes in VERMONT during the 1963 season, and adults appeared in potato fields in Kingston, Washington County, RHODE ISLAND, in late May. The pest was heavy on potato in the Newport area of Newport County, Rhode Island, in early June, and scattered infestations were reported on potato, tomato and other crops in the State during the same month. First potato flea beetle adults of the season in DELAWARE were noted feeding on young potato plants in Kent County on April 29, and by May 13 this pest was very numerous on potatoes and tomatoes in most areas of the State. Adults were also abundant in many fields of potatoes during early July in New Castle and Kent Counties. Larval injury to potato tubers was considerably more serious in 1963 than in 1962 in these Delaware counties. Potato flea beetle was light on potatoes in VIRGINIA during June, but did cause some damage to fall potatoes in August. Infestations were sporadic in PENNSYLVANIA during 1963.

Potato flea beetle caused extensive damage to potatoes in areas of OHIO where the crop was not adequately treated during the 1963 season. In WISCONSIN, adults began appearing on potatoes the second week of June, with some damage evident in late July. Potato flea beetle was abundant throughout much of MONTANA during the 1963 season, with many tons of potatoes going into storage damaged by larvae. This situation was worsened by a fungus which gained entrance to tubers through injured areas, resulting in deep, black spots which made the potatoes unsaleable. In NORTH DAKOTA, populations of potato flea beetle were generally low to moderate, with abundant numbers of adults being noted in isolated sections of the northeast area later in the season.

TUBER FLEA BEETLE (Epitrix tuberis) populations were low for the fifth consecutive year in eastern WASHINGTON, and caused only trace amounts of damage to potatoes in all growing areas of COLORADO during 1963. The incidence of this pest in OREGON in 1963 was the lowest in years; its complete absence in some areas being unexplainable. WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) numbers and/or injury were approximately normal in UTAH during the season, but TOBACCO FLEA BEETLE (Epitrix hirtipennis) caused local problems on potatoes in Zavala County, TEXAS. An unusually heavy population of STRIPED FLEA BEETLE (Phyllotreta striolata) occurred on young peppers in Sussex County, DELAWARE, during early June, causing rather heavy feeding injury.

Unspecified FLEA BEETLES were moderate in numbers on potatoes in NEW JERSEY during 1963; Epitrix spp. were heavy on unprotected potatoes, tomatoes and eggplants at numerous locations over MARYLAND; and light populations of Epitrix sp. occurred in early potato fields in Buffalo, Red Willow and Webster Counties, NEBRASKA, during May. In CALIFORNIA, Hemiglyptus basalis and Epitrix sp. caused some damage to tomatoes and other plantings. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) caused foliar damage to various crops, particularly potatoes, in Zavala County, TEXAS, and a TORTOISE BEETLE (Gratiana pallidula) damaged eggplants in the same area.

PEPPER WEEVIL (Anthonomus eugenii) ranged from trace to light on pepper plantings in the Irvine area of Orange County, CALIFORNIA, but DARKLING BEETLES (Blapstinus spp. and Metoponium spp.) were a problem locally on tomatoes and other seedling crops in the same State.

SOUTHERN POTATO WIREWORM (Conoderus falli) caused serious damage to tomatoes in SOUTH CAROLINA, which was the first known instance in the State of this pest feeding on stalks of this host. A WIREWORM survey in the State indicated that damage to potatoes by these pests in the spring of 1963 was approximately twice that of 1962, even though lower numbers of wireworms were present in 1963. It is possible that drought conditions during May and June resulted in more feeding on potato tubers. WIREWORMS (Ctenicera spp.) were found only in scattered locations in potato fields in ALASKA during 1963.

TOMATO FRUITWORM (Heliothis zea) caused some damage to late tomatoes on the Eastern Shore of VIRGINIA during the 1963 season, and infestations ranged light to moderate on the same host in GEORGIA, with most infestations being light. Tomato fruitworm was not damaging to tomatoes grown out-of-doors in SOUTH CAROLINA, as of October 15, but is apparently becoming an increasing problem on this crop in greenhouses. Tomato fruitworm and TOBACCO BUDWORM (Heliothis virescens) were found on tomatoes in the Rio Grande Valley in TEXAS. Tomato fruitworm was of minor importance on tomatoes and chili in NEW MEXICO and caused a light loss of 0-2 percent on tomatoes in COLORADO. Loss was approximately 5 percent on tomatoes in southeastern Colorado, where a late fall, without frost, provided favorable conditions for high tomato yields but also increased the possibility of damage due to this species. Populations were below normal in UTAH. Tomato fruitworm infested tomatoes in CALIFORNIA, where the population buildup was not as severe as in previous years but did persist to the end of the year. STALK BORER (Papaipema nebris) was quite common on tomatoes over PENNSYLVANIA during the 1963 season.

CABBAGE LOOPER (Trichoplusia ni) was noticeable on tomatoes in DELAWARE by mid-August, particularly in areas of Kent County. Cabbage looper was a greater problem on the Eastern Shore of VIRGINIA in 1963 than in any year since 1959, damaging trellised tomatoes in early July and fall potatoes in early September. Late tomatoes were also damaged in the area. In FLORIDA, the pest was no particular problem on tomatoes during 1963, but when present was difficult to control. Cabbage looper was a problem on chili peppers in NEW MEXICO this past season.

BLACK CUTWORM (Agrotis ipsilon) and VARIEGATED CUTWORM (Peridroma saucia) injured several plantings of tomatoes, potatoes and other crops over MARYLAND during 1963. Black cutworm was especially abundant in VIRGINIA this season, with as high as 25 percent of potato tubers injured in some localities. The pest caused an estimated loss of 15 percent in 4 or 5 potato fields in Weld County, COLORADO. In CALIFORNIA, black cutworm populations were heavy in potatoes in Kern County. SOUTHERN ARMYWORM (Prodenia eridania) was sporadically troublesome on tomatoes in some fields in FLORIDA, but was not of great concern in the overall picture. In the Bradenton area of Manatee County, BEET ARMYWORM (Spodoptera exigua) was a pest on bell peppers for the first time.

POTATO TUBERWORM (Gnorimoschema operculella) was found infesting potatovines in Monroe County, MICHIGAN, in July. By harvest (mid-September), an area 7 miles long by 6 miles wide was known to be infested. Good commercial control with insecticides was obtained by several growers in the area. This was the first record of potato tuberworm in Michigan since a collection made in Bay County in 1932. Potato tuberworm infestations were light on potatovines in Lucas County, OHIO, in 1963, and larvae of the species fed as leaf miners on eggplant in Harris County, TEXAS. Potato tuberworm was a problem on potatoes for the first time in a long time at Hastings, St. Johns County, FLORIDA. Injury was common and averaged 2-3 percent with some growers having approximately 15 percent damage. These dealers practiced little control.

TOMATO PINWORM (Keiferia lycopersicella) populations were variable in tomato plantings in San Diego, Fresno and Imperial Counties, CALIFORNIA, this past season.

The greatest loss from EUROPEAN CORN BORER (Ostrinia nubilalis) in ALABAMA during the 1963 season was to 4,000 acres of pimento peppers in Marshall, De Kalb and Blount Counties, where considerable loss was caused by larvae entering fruit. Infestations of European corn borer in most sweet peppers in DELAWARE were generally under excellent control, with pod infestations in a few untreated fields averaging between 10 and 20 percent during the last half of September. First egg masses were found on potatoes in Kent County on May 20 and first-generation larvae were full grown by July 11. Largest European corn borer adult flights in Delaware occurred in late July and August, remaining high through mid-September. European corn borer populations in potatoes were very low in NEW JERSEY during the 1963 season.

TOMATO HORNWORM (Protoparce quinquemaculata) was light to medium on tomatoes in CALIFORNIA, with many spotted infestations occurring from Santa Barbara County northward. Tomato hornworm numbers and/or injury were approximately normal in UTAH during the 1963 season. The pest caused losses of 0-2 percent to tomatoes in COLORADO, with loss in the southeastern area of the State being less than one percent. Adults of tomato hornworm began appearing in Dane County, WISCONSIN, light traps on June 26 and continued until August 3. The second-generation flight commenced August 20 and continued to October 19, with unusually large flights occurring in Dodge County. Observations of first-generation larvae feeding were noted as light in most areas of Wisconsin, although localized heavy infestations occurred in Sauk County. Tomato hornworm caused the usual amount of damage to tomato foliage over TEXAS during the season, but no specimens were observed or reported in RHODE ISLAND.

APHIDS on potatoes were of some concern in a few States during the 1963 season. In general, BUCKTHORN APHID (Aphis nasturtii), POTATO APHID (Macrosiphum euphorbiae), GREEN PEACH APHID (Myzus persicae) and FOXGLOVE APHID (Acyrthosiphon solani) were heavier on potatoes in MAINE than during the 1962 and 1961 seasons. Spring migrations of buckthorn aphid and potato aphid began about June 5 and indications were that foxglove aphid began moving about on or soon after June 7. Spring migrants of green peach aphid apparently had not matured by June 11, but were migrating by June 22. By June 28, overall aphid populations on potatoes in Maine were 4 times the 1962 level and twice the 1961 level for the same date.

Buckthorn aphid was the most abundant species at that time. On untreated foliage, appreciable increases in numbers of infested plants were recorded in early July. Peak aphid populations were reached in early August and numbers held steady until mid-August, than decreased steadily because of predation and fungus diseases. At the seasonal peak in Maine, overall aphid numbers were about 3.5 times as large as in 1962, but only one-seventh as large as in 1961. In order of abundance, the species were buckthorn aphid, potato aphid, green peach aphid and foxglove aphid. The first two were the predominant species in Maine until after the seasonal peak. Green peach aphid was generally scarce on potatoes in the State during the 1963 season, while foxglove aphid was not present in more than trace infestations at any time.

Infestations of potato aphid and green peach aphid were not great on potatoes in RHODE ISLAND, but did accentuate dry-weather damage in commercial potato fields during July in Kingston, Richmond and Slocum in Washington County. These same 2 aphids were much less numerous in NEW JERSEY than in 1962. Potato aphid was first noted on potatoes and tomatoes in New Castle and Kent Counties, DELAWARE, during the week of May 21, but populations, generally, were light on these crops the remainder of the growing season. Green peach aphid was heavier than usual on spring potatoes in VIRGINIA, and was abundant on potatoes and other crops in OHIO during the season. Populations of green peach aphid ranged moderate to heavy on early potatoes in Weld County, COLORADO; moderate popula- of the pest developed on late potatoes. Potato aphid was present in trace numbers on potatoes in the San Luis Valley of Colorado, but the aphid was not an economic problem on commercial plantings. Potato aphid was below average in numbers or importance in UTAH, and light in the Tulelake area of Siskiyou County, CALIFORNIA. Green peach aphid infested many vegetable crops in California. Green peach aphid was abnormally scarce in eastern WASHINGTON during May of 1963, but increased on crops during June with controls required during late June and July on potatoes. In ALASKA, aphids on potatoes were low during the 1963 season.

Green peach aphid was present on peppers in New Castle County, DELAWARE, by mid-June and began to increase on this crop during late July. Some very heavy infestations occurred in New Castle County during late August and September. The pest was very heavy on fall peppers in VIRGINIA; was sufficiently numerous on potato plantings in the Homestead area of Dade County, FLORIDA, to warrant insecticidal applications; and was abundant on peppers, eggplant, tomatoes and other crops in OHIO. Populations of green peach aphid on peppers and some other crops in MICHIGAN were higher than usual during August and September.

A ROOT APHID (Rhopalosiphum rufiabdominalis) populations were light on pepper roots in Ventura County, CALIFORNIA. An APHID (Smynthurodes betae) was collected for the first time in NORTH CAROLINA during 1963, being taken on tomatoes in Madison County during June. In Orono, Penobscot County, MAINE, heavy infestations of undetermined aphids caused heavy damage to tomatoes and peppers late in July.

SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) were light on tomatoes in GEORGIA during the season, and unspecified STINK BUGS were a problem locally on tomato plantings in several locations over CALIFORNIA.

LYGUS BUGS (Lygus hersperus and L. elisus) began damaging potatoes and other crops by late June in eastern WASHINGTON and continued to be a problem for the remainder of the 1963 season. In MONTANA, PLANT BUGS caused some trouble on potatoes during late August in Flathead County.

POTATO LEAFHOPPER (Empoasca fabae) was a problem on potatoes in NEW JERSEY, with one field of potatoes in Cumberland County having been seriously damaged. The pest was rather abundant on some potatoes in DELAWARE by mid-June, and was

numerous on potatoes and tomatoes throughout most of the State during July and part of August. Potato leafhopper was considerably above normal in MARYLAND during the 1963 season and caused extensive damage to potatoes, peppers and other crops in most sections of the State. Some buildup was noted during August in RHODE ISLAND and it was sporadic in PENNSYLVANIA. Potato leafhopper was the most important insect attacking vegetable crops in OHIO during 1963, causing serious damage to potatoes, peppers and eggplant and being extremely heavy on unsprayed plants. The species also caused heavy feeding damage to untreated potatoes in WISCONSIN during the season, with "hopperburn" on home garden potatoes again evident in late summer. This was also true in MISSOURI. Potato leafhopper was present in MICHIGAN, but caused no serious problems, and populations were generally low to moderate in NORTH DAKOTA. Potato leafhopper caused trace amounts of damage to potatoes in all growing areas of COLORADO.

BEET LEAFHOPPER (Circulifer tenellus) populations were high in most tomato-growing areas of NEW MEXICO during 1963, with curly top virus an important factor in reducing yields in Valencia, San Juan, Rio Arriba, Dona Ana and Luna Counties. In the western area of COLORADO, losses to tomatoes ranged 6-15 percent, due primarily to beet leafhopper and resulting curly top. Some purple-top in tomatoes, transmitted by SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons), was reported from the Red River Valley of MINNESOTA.

Unspecified LEAFHOPPERS were very heavy on several plantings of potatoes on the Eastern Shore of VIRGINIA during late August and several species caused some damage to potatoes in TEXAS. Leafhopper populations were low on potatoes in ALASKA during the 1963 season.

POTATO PSYLLID (Paratrioza cockerelli) populations in NEVADA were the heaviest in several years, being heavy in Clark, Esmeralda and Nye Counties in April and heavy in Churchill and Mineral Counties in May. Populations were markedly smaller during 1963 in WYOMING than those in 1962; first specimens were collected on matrimony-vine in Albany County on June 18 and the first on potatoes July 2 in Goshen County. Damage was very slight on late-planted potatoes in Goshen County. In COLORADO, potato psyllid populations on native host plants early in the spring of 1963 were present in numbers that in most years would have been a threat to potatoes; however, the weather became hot and dry and no damaging populations developed on potatoes in Weld County. In Saguache, Rio Grande, Alamosa, Conejos, Costilla and Montrose Counties, Colorado, potato psyllid was found in light numbers on potatoes early in the growing season and some controls were applied; losses were less than 1 percent. This psyllid was present on tomatoes late in September in Weld and Larimer Counties, but no damage resulted. Potato psyllid was light in potato-growing areas of Kern County, CALIFORNIA, and in the panhandle area of NEBRASKA, and the pest was below average during 1963 in UTAH.

A WHITEFLY (Aleyrodes spiraeoides) was abundant and damaging on potatoes in Grant County, WASHINGTON, in late August. Unspecified whiteflies were present on eggplant and other crops in Coachella, Riverside County, CALIFORNIA.

PEPPER MAGGOT (Zonosemata electa) was a serious problem in NEW JERSEY during the 1963 season, and was a problem on commercial peppers in Warren, Vance and and Wake Counties, NORTH CAROLINA, during early August.

Heavy numbers of a LEAF MINER FLY (Liriomyza munda) occurred on a wide variety of crops in TEXAS, including tomatoes, and infestations in the winter garden area of Dimmit and Zavala Counties were sufficiently significant to warrant controls. In FLORIDA, another LEAF MINER FLY (L. archboldi) caused complete loss of leaf function on unsprayed tomatoes in the Brandenton area, Manatee County. Unspecified leaf miner flies on tomatoes in the Ft. Pierce-Okeechobee area were relatively light compared with 1962, and somewhat the same situation prevailed in the Homestead area where these pests were prevalent but not serious An unspecified LEAF MINER was a serious threat to greenhouse tomatoes and staked tomatoes in SOUTH CAROLINA during the 1963 season.

VINEGAR FLIES (Drosophila spp.) built up to high numbers in NEW JERSEY after September 1 as a result of heavy rains and cloudy weather at that time. These flies were not a serious problem around tomato canneries in MARYLAND until relatively late in the season. D. melanogaster was light on tomatoes during 1963 in NEW YORK.

Several species of THRIPS were destructive to peppers and other crops during the summer months in MARYLAND, but caused only trace amounts of damage to potatoes in all growing areas of COLORADO. WESTERN FLOWER THRIPS (Frankliniella occidentalis) and ONION THRIPS (Thrips tabaci) were variable on tomatoes, peppers and other crops in TEXAS, requiring controls in several areas. Western flower thrips was a problem on peppers and tomatoes in a few CALIFORNIA locations.

FIELD CRICKETS (Gryllus spp.) became abundant in gardens in many areas of NORTH DAKOTA during the 1963 season, and caused considerable damage to tomato fruits in the Fargo area of Cass County.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused very extensive damage to tomato and eggplant in NEW JERSEY. The pest migrated from clovers and other spring hosts to potatoes and other crops in central WASHINGTON, where unseasonably hot weather during August and September was conducive to rapid buildup and damage. Unspecified SPIDER MITES were a problem on tomatoes and potatoes in local areas in most sections of TEXAS during the season.

TOMATO RUSSET MITE (Aculus lycopersici) populations on tomatoes were light in a few locations over CALIFORNIA, and numbers were below average during the season in UTAH.

GARDEN SYMPHYLAN (Scutigerella immaculata) was very abundant in some instances in PENNSYLVANIA, causing damage to peppers and tomatoes, and caused 60-75 percent loss to one field of tomatoes in Weld County, COLORADO. CENTIPEDES were a problem locally on tomatoes and other crops in Santa Cruz County, CALIFORNIA, during the 1963 season. MILLIPEDS damaged home garden potatoes in 2 areas of WASHINGTON; Polydesmus inconstans in Columbia County and Diploiulus latistriatus in Kitsap County. In ALASKA, potatoes were severely damged by SLUGS at English Bay.

CRUCIFER INSECTS

Highlights:

IMPORTED CABBAGEWORM was a problem on cabbage and cauliflower in areas of New Mexico; destroyed all unprotected cabbage in northeastern Kansas; and severely injured home plantings of broccoli, cabbage and kale in all sections of Maryland during the 1963 season. CABBAGE LOOPER caused considerable damage to crucifers in all sections of Maryland, especially late in the seaon, and was a greater problem on the Eastern Shore of Virginia during August than in any year since 1959. Cabbage looper was apparently more difficult to control during 1963 over a large portion of Florida, especially on crucifers. The species was also a problem on cabbage and cauliflower in areas of New Mexico. STRIPED FLEA BEETLE was an important pest of cole crops in Ohio, and CABBAGE APHID severely damaged many cabbage plantings in southeastern Wisconsin. CABBAGE MAGGOT was more of a problem in the mountain counties of North Carolina than in 1962, and caused considerable damage in Illinois, due to resistance to certain insecticides. The pest also became resistant to chlorinated hydrocarbons for the first time in the Skagit Valley of Washington. Cabbage maggot caused widespread damage to cabbage in early June in Wisconsin, and was found for the first time in Ravalli and Missoula Counties, Montana, during 1963. TURNIP MAGGOT infested crucifers in all areas of Alaska and continued to be the most consistent serious problem there. POPLAR PETIOLE GALL APHID heavily damaged cabbage in the Rio Grande Valley of Texas.

IMPORTED CABBAGEWORM (Pieris rapae) was medium on cole crops in several areas of CALIFORNIA during the 1963 season, and was a problem on cabbage and cauliflower in Bernalillo and Sandoval Counties, NEW MEXICO. The pest was approximately normal in numbers and/or injury in UTAH, but numbers were economic on cabbage in Pueblo County, COLORADO. Imported cabbageworm adults appeared in two cycles of moth flight in KANSAS, resulting in destruction of all unprotected cabbage in the northeast area of the State. Imported cabbageworm was destructive on all cole crops in the Corvallis area of Ravalli County, MONTANA, and was abundant in gardens over NORTH DAKOTA during the 1963 season. Larvae of this pest were again damaging to cole crops in home gardens in WISCONSIN, but injury in commercial plantings was minimal. In NORTH CAROLINA, imported cabbageworm was a pest of crucifers, but much easier to control than cabbage looper (Trichoplusia ni).

Imported cabbageworm severely injured home plantings of broccoli, cabbage and kale in all sections of MARYLAND during 1963. First adults were noted throughout DELAWARE on April 3 and by May 20, larvae were fairly common on cabbage in New Castle and Kent Counties. Most injury in the State occurred on small cabbage fields during June and July. Larvae of imported cabbageworm first appeared in western NEW YORK about June 1, but populations were normal to less than normal throughout the State during the 1963 season. In VERMONT, the pest attacked crucifers in home gardens. Light numbers of imported cabbageworm adults were noted on cole crops in the Yarmouth-Cape Elizabeth area of Cumberland County, MAINE, early in June. Light to moderate numbers and damage were reported on cabbage from Androscoggin and Sagadahoc Counties in late July and early August, and light numbers and damage on broccoli from the Monmouth area of Kennebec County and the Orono area of Penobscot County in early August. Light populations of imported cabbageworm caused moderate damage to cabbage in the Bangor area, Penobscot County, during mid-August and moderate numbers and damage were observed on rutabaga in Dixfield, Oxford County, at the same time.

CABBAGE LOOPER (Trichoplusia ni) was present in light numbers in Orono, Penobscot County, MAINE, and caused light damage to that crop in early August; and was a pest of crucifers in home gardens in VERMONT, during the season. Cabbage looper was not abundant in western NEW YORK at any time during 1963, but was normal or slightly above late in the season on Long Island. The pest was not quite so abundant in PENNSYLVANIA as in 1962. Cabbage looper was not noticeable on cabbage in DELAWARE until early in August, particularly in areas of Kent County. By late August and September, larvae were generally very common on most cole crops throughout the State. Cabbage looper caused considerable damage to cabbage, broccoli and other crucifers in all sections of MARYLAND, especially late in the season. This pest was a greater problem during August on the Eastern Shore of VIRGINIA than in any year since 1959. Broccoli in the area suffered the most damage, but other crops, including cucurbits, were also damaged. Cabbage looper was the usual severe problem on both commercial and garden cabbage in all areas of NORTH CAROLINA during the 1963 season, but infestations were light to moderate on cabbage and collards in GEORGIA.

Cabbage looper was apparently more difficult to control during 1963 in FLORIDA, especially on crucifers, from Homestead, Dade County, to the northern portion of that State. This was apparently due to population pressure and reduction of effectiveness of insecticides. During early fall, populations in the Sanford area of Seminole County were high; because chemicals failed to reduce these populations, considerable damage occurred to cabbage fields. Later, chemicals and cold weather, including exceptionally heavy rains, reduced cabbage looper numbers to the point they were no longer an economic factor in cabbage production. Cabbage looper was serious early in the season at Zellwood, Orange County, Florida, and was very injurious at Belle Glade, Palm Beach County, in April and May on plants not sprayed at least once a week. During the fall, however, cabbage looper was not as serious in the Everglades, ranging light to moderate. In the Hastings and Gainesville areas of Florida, economic numbers of cabbage looper were delayed, but when they did appear, much cabbage had been harvested. Earlier in the season, infestations were lighter than usual. Cabbage looper caused considerable injury to cabbage in some areas of LOUISIANA during the 1963 season, with counts of 5-8 per plant not uncommon in early September.

Cabbage looper was a problem on cabbage and cauliflower in Bernalillo and Sandoval Counties, NEW MEXICO, and populations were moderate to heavy in some cabbage fields in Adams County, COLORADO, but were controlled. In NORTH DAKOTA, cabbage looper was abundant in gardens over the State during the season.

BLACK CUTWORM (Agrotis ipsilon) and GRANULATE CUTWORM (Feltia subterranea) were serious on vegetable crops, particularly cabbage, during the spring and fall season in the Belle Glade area of Palm Beach County, FLORIDA, with controls being unsatisfactory in some instances. In the same area, Prodenia spp., mostly SOUTHERN ARMYWORM (P. eridania), were very heavy during late spring, with most damage occurring to weeds or abandoned crop material; however, some damage occurred to crucifers, particularly in border rows.

Low populations of SALT-MARSH CATERPILLAR (Estigmene acrea) caused slight damage to broccoli in Orono, Penobscot County, MAINE, during early to mid-August. DIAMONDBACK MOTH (Plutella maculipennis) was an important pest of crucifers in NORTH CAROLINA during the 1963 season, but was much easier to control than cabbage looper. On the Eastern Shore of VIRGINIA, diamondback moth was rather numerous on localized plantings of greens in early July. GARDEN WEBWORM (Loxostege similalis) populations ranged moderate to heavy in some fields of cabbage in Adams County, COLORADO, but were controlled.

POTATO FLEA BEETLE (Epitrix cucumeris) infestations were scattered on broccoli and turnip during late June in RHODE ISLAND, and STRIPED FLEA BEETLE (Phyllotreta striolata) was an important pest of cole crops in OHIO during the 1963 season. Adults and injury of another FLEA BEETLE (P. cruciferae) were first noted on young cabbage in DELAWARE during mid-April. By mid-May, this species was causing considerable feeding injury to cabbage, horseradish and turnips in various areas. Populations were also rather common on horseradish in July and on late cabbage during August in some areas of Delaware. In MARYLAND, Phyllotreta spp. were again abundant on several cruciferous crops during the season.

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) was heavy on mustard and turnip greens in southeast GEORGIA during the 1963 season, and RED TURNIP BEETLE (Entomoscelis americana) severely damaged crucifers in gardens near Kenny Lake in the Copper River Valley of ALASKA.

CABBAGE CURCULIO (Ceutorhynchus rapae) damaged 6 fields of cabbage in Northampton County, VIRGINIA, during June, and VEGETABLE WEEVIL (Listroderes constirostris obliquus) caused mild concern to turnip growers in Trinity County, TEXAS, during the past season. In CALIFORNIA, a WEEVIL (Brachyrhinus cribricollis) was heavy on broccoli plantings in Santa Maria, Santa Barbara County. CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) was unusually abundant in northwestern WASHINGTON by late April. This species usually appears in the State the first week of April, regardless of the weather.

CABBAGE APHID (Brevicoryne brassicae) populations persisted on cole crops all year in the various growing areas of CALIFORNIA as crops were planted. It began appearing in large numbers on brussel sprouts and broccoli during late July in Marion, Clackamas and Multnomah Counties, OREGON, but was approximately normal in numbers and/or injury in UTAH this season. Cabbage aphid colonies commenced forming early (the first week of June) in WISCONSIN and caused severe damage to many cabbage plantings in the southeast area. These populations collapsed the first week of July. In FLORIDA, cabbage aphid populations were heavy during April and May on inadequately treated cabbage in the Everglades. In the northern area of Florida, the aphid was about normal, being kept under control by appropriate insecticides. Cabbage aphid infestations on cabbage and collards were unusually light during the 1963 growing season in GEORGIA. Cabbage aphid appeared early in NEW YORK and was very abundant throughout the season in the western part of the State and average in the southeast and on Long Island. In RHODE ISLAND, the pest infested broccoli in Kingston, Washington County, during August, and in Riverside, Providence County, during September.

First adults and nymphs of GREEN PEACH APHID (Myzus persicae) were active on cabbage in New Castle County, DELAWARE, on April 29 and the pest was present on turnips and horseradish by mid-June. This aphid was abundant on radishes, turnips and other crops in OHIO during 1963, and in TEXAS, ranged moderate to heavy on cabbage and turnips in the winter garden area of Dimmit and Zavala Counties, the Rio Grande Valley and gulf coast areas. Also in Texas, POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) heavily damaged cabbage in the Rio Grande Valley, with about 75 percent of the fields in the southern half of the valley being heavily infested. TURNIP APHID (Hyadaphis pseudobrassicae) infestations were heavy and very common on turnips in OHIO. Unspecified cabbage aphids were more of a problem in NEW JERSEY during 1963 than in 1962.

CABBAGE MAGGOT (Hylemya brassicae) populations were moderate in the Scarboro area of Cumberland County, MAINE, in early June, causing heavy damage to cauliflower and radish, and heavy egg deposition was found on cabbage and cauliflower in the Cape Elizabeth area of the same county. Light damage to these same crops was also reported from Yarmouth at about the same time. Light infestations of cabbage maggot were observed on cabbage in Jonesboro, Washington County, in late June and on radish in Orono, Penobscot County, in mid-July. Heavy populations and damage to late broccoli occurred in Monmouth, Kennebec County, Maine, with all plants dead or dying by September 5. Cabbage maggot infested radish in Warwick, Kent County, and in Kingston, Washington County, RHODE ISLAND, in late July. Adult populations of this pest were high and egg laying very heavy by May 10 in the Bridgeport area of CONNECTICUT, but infestations were generally moderate in NEW YORK during 1963. Cabbage maggot was more of a problem on cabbage in the mountain counties of NORTH CAROLINA than in 1962.

In ILLINOIS, most vegetable and truck crop insects were relatively light during 1963 and kept well under control. The one exception was cabbage maggot, which caused considerabe damage and was difficult to control due to resistance to certain insecticides. The first generation of cabbage maggot in WISCONSIN caused widespread damage to cabbage during the first week of June. The second generation was underway in the State by the first week of July and caused some damage, although it was not as extensive as that caused by the first generation. Cabbage maggot was observed for the first time in Ravalli and Missoula Counties, MONTANA, during 1963, and was locally a pest of cole crops in Santa Cruz and Masonville, Santa Cruz County, CALIFORNIA, during the season. Light damage by this pest occurred to cabbage, cauliflower, turnip and rutabaga in Multnomah County, OREGON, with egg laying being noted May 11. Cabbage maggot became highly resistant to chlorinated hydrocarbon treatments for the first time in the Skagit Valley of WASHINGTON, with cauliflower production being cut in half. Resistance had previously been noted in the central portion of western Washington.

TURNIP MAGGOT (Hylemya floralis) infested crucifers in all areas of ALASKA, continuing to be the most consistent serious problem. Pupation occurred in cabbage heads and the pest was active in turnips until the middle of October.

HARLEQUIN BUG (Murgantia histrionica) and other STINK BUGS were more of a problem in home gardens on the Eastern Shore of VIRGINIA during 1963 than for the past several years.

CENTIPEDES were a local problem on cauliflower and other crops in Santa Cruz County, CALIFORNIA, and SLUGS severely damaged crucifers in southeastern port areas of ALASKA during the 1963 season there.

BEAN, PEA AND OTHER LEGUME INSECTS

Highlights:

MEXICAN BEAN BEETLE was damaging to beans in areas of New Mexico, more injurious statewide in Michigan, the most important pest of commercial and garden beans in North Carolina and above normal on beans on the Eastern Shore of Maryland during 1963. PEA WEEVIL was unusually heavy in Marion and Clackamas County pea fields in Oregon. Various CUTWORMS were serious on vegetables in several States, particularly in Florida. PEA APHID was unusually low in pea-growing areas of Oregon, but did necessitate treatment of 10,000 acres of peas in Lewis County, Idaho. POTATO LEAFHOPPER populations were substantial on commercial lima beans in Wisconsin, and seriously damaged beans and other crops in Ohio; numbers were considerably above normal in Maryland, causing extensive damage to beans and other crops in most sections of the State. LYGUS BUGS damaged many crops in California and required considerable control. THRIPS were also of some concern, with damage reported in California, Michigan and Maryland.

MEXICAN BEAN BEETLE (Epilachna varivestis) completely defoliated garden plantings of pinto and pole beans at Belen and Los Lunas, Valencia County, NEW MEXICO, with lighter infestations being reported from Bernalillo County. Heavy populations of the pest skeletonized foliage in Estancia Valley bean fields during August. Mexican bean beetle caused light to moderate damage to garden beans in most areas of ARIZONA in 1963, with largest populations being found in Graham and Greenlee Counties. The beetle was more abundant and/or more damaging than normal in UTAH, but only trace numbers (0-1 per 10 plants) were found on garden beans in nine COLORADO counties. Mexican bean beetle was not a serious problem in WYOMING during 1963, Platte County being the only area in the State where the pest was found. No damage could be found in bean fields and few, if any, controls were applied. In general, populations were much lower in Wyoming than during 1962. Mexican bean beetle caused almost complete destruction of fall-planted garden beans in Doniphan County, KANSAS, but populations were very low in the Panhandle of NEBRASKA. Mexican bean beetle caused more injury statewide in MICHIGAN during 1963 than during recent years.

Mexican bean beetle was general on pole beans at Quincy, Gadsden County, FLORIDA, and ranged light to moderate on pole, snap and lima beans in GEORGIA. Damage by this pest was normal throughout SOUTH CAROLINA during the 1963 season, and damaging numbers did not appear until late in the season in TENNESSEE. Mexican bean beetle was the most important pest damaging commercial and garden beans throughout NORTH CAROLINA, feeding beginning in May and continuing throughout the season. This species lightly infested snap and lima beans during June on the Eastern Shore of VIRGINIA. The pest was more numerous in early July than in recent years, but was easily controlled. Mexican bean beetle was above normal on snap and lima beans on the Eastern Shore of MARYLAND in 1963 and damage to unprotected plants was general, but populations on beans in central and western sections of the State were somewhat below normal.

Scattered populations of Mexican bean beetle occurrred on snap and lima beans during late June and early July in DELAWARE, with rather heavy feeding injury noticeable in some areas of Sussex and Kent Counties. Populations of the pest were low in NEW JERSEY and light in NEW YORK. Eggs were found on vegetables in MASSACHUSETTS on June 20, but none had hatched in the Springfield area at that time. The first adult Mexican bean beetle of the season in RHODE ISLAND was collected June 4 in Washington, Kent County, and the pest was present generally in average abundance during the 1963 season.

BEAN LEAF BEETLE (Cerotoma trifurcata) adults were common and caused light to heavy foliage injury to early and late snap and lima beans in all sections of MARYLAND, but the pest was relatively light and scattered on beans throughout the

season in VIRGINIA. Bean leaf beetle caused considerable damage to pole beans early in the 1963 season in SOUTH CAROLINA, and ranged light to moderate on pole, snap and lima beans in GEORGIA. In MISSOURI, bean leaf beetle was reported feeding on truck crops and in gardens during the season. WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) was somewhat lighter than in most years in OREGON, with damage to bush beans being reported in Linn County.

COWPEA WEEVIL (Chalcodermus aeneus) was reported to have caused some damage to cowpeas and beans in the Belle Glade area of Palm Beach County, FLORIDA. In one instance, the wrong insecticide had been used, and in another, no control had been applied. PEA LEAF WEEVIL (Sitona lineata) damaged blossoms of pole beans in Linn and Benton Counties, OREGON, during August, and PEA WEEVIL (Bruchus pisorum) was unusually heavy during early June in pea fields of Marion and Clackamas Counties, same State.

GRANULATE CUTWORM (Feltia subterranea) and BLACK CUTWORM (Agrotis ipsilon) were serious on vegetable crops, particularly beans, during the spring and fall seasons in the Belle Glade area of Palm Beach County, FLORIDA, with some growers experiencing unsatisfactory controls. BEET ARMYWORM (Spodoptera exigua) was a problem on black-eyed peas and field peas in the Bradenton area of Manatee County in the same State. In the Belle Glade area, Prodenia spp., mostly SOUTHERN ARMYWORM (P. eridania), were very heavy late in the spring, with most damage occurring to weeds or abandoned crop material; however, some damage occurred to beans and field peas, particularly in border rows. Also in Florida, several fields of pole beans at Quincy, Gadsden County, were heavily infested by a LOOPER (Pseudoplusia includens), and pole beans in the area generally, were attacked by TOMATO FRUITWORM (Heliothis zea).

A larval complex, including CABBAGE LOOPER (Trichoplusia ni), tomato fruitworm and other CUTWORMS, caused considerable damage to fields of pole beans during the spring in the Zellwood area, Orange County, FLORIDA. A combination of poor weather and failure of growers to make sufficiently frequent field inspections allowed populations of these pests to reach destructive proportions before the presence of larvae was suspected. Considerable loss occurred before this situation was controlled. Populations of tomato fruitworm were light to medium locally in CALIFORNIA; however, population buildup was not so severe as in previous years, but the pest did persist to the end of the year. Larvae of LIMA-BEAN VINE BORER (Monoptilota pergratialis) caused heavy injury to lima beans in research plots at Salisbury, Wicomico County, MARYLAND, during the 1963 season.

PEA APHID (Acyrthosiphon pisum) was unusually low during 1963 in the pea-growing areas of OREGON, but was very abundant in pea fields in Lewis County, IDAHO, where approximately 10,000 acres of peas were severely infested and heavily damaged. In UTAH, the species was below normal in abundance and importance on peas during the season. Eggs of pea aphid hatched by April 8 in WISCONSIN and the first winged form was noted in mid-May. Populations fluctuated considerably on peas in Wisconsin, according to the area and stage of development of the crop. Pea aphid ranged light to moderate in southern MISSOURI gardens during the early spring, but these infestations were greatly reduced in two weeks by beneficial insects or chemical controls. Pea aphid populations were light in NEW YORK in 1963. The aphid was first noted on commercial peas in Sussex County, DELAWARE, on May 6, with populations increasing noticeably on this crop throughout the State by the week of May 21. Subsequent insecticidal applications on peas appeared to effectively control this aphid for the remainder of the season.

BEAN APHID (Aphis fabae) was first noted on snap beans in Sussex County, DELAWARE, in mid-May and populations were rather numerous on young lima beans in Kent and Sussex Counties during early July. Some infestations were also observed on late lima beans in the State during August. Various aphids, but mostly bean aphid, appeared on Harvester variety snap beans at Belle Glade, Palm Beach County, FLORIDA, and were troublesome to some growers. Bean aphid numbers and/or injury were approximately normal in UTAH during 1963, and light to medium populations developed on lima and dry beans in Orange, Ventura and Butte Counties, CALIFORNIA. Bean

aphid populations reached their highest peak during early August in Umatilla County, OREGON, where lima beans were seriously damaged.

COWPEA APHID (Aphis craccivora) was variable during 1963 on miscellaneous bean and legume crops in FLORIDA, but overall damage to Harvester variety snap beans was moderate in the spring and very low in the fall. An APHID (Smynthurodes betae) was collected in NORTH CAROLINA for the first time during 1963, being taken on beans in Davie County during June.

Substantial populations of POTATO LEAFHOPPER (Empoasca fabae) were present on commercial lima beans in WISCONSIN, although injury was not readily apparent. The pest fed heavily on untreated beans in the State and was common on peas; however, damage was not evident on these crops. Potato leafhopper seriously damaged beans and other crops in OHIO during 1963, with populations on unsprayed plants being extremely heavy. Potato leafhopper numbers were considerably above normal in MARYLAND and caused extensive damage to beans and other crops in most sections of that State during 1963. First potato leafhopper adults of the 1963 season in DELAWARE were noted May 20 on peas in Kent County, and were common on snap and lima beans by mid-June. During July and part of August, potato leafhopper was numerous on beans throughout most of Delaware. The pest was not generally abundant on beans in NEW YORK, but was considered at least normal in limited situations. In VERMONT, beans were damaged by potato leafhopper during the 1963 season.

Unspecified LEAFHOPPERS were very heavy on several plantings of black-eyed peas on the Eastern Shore of VIRGINIA during late August, and GREEN STINK BUG (Acrosternum hilare) was occasionally damaging to beans in home gardens in several areas of the State during late summer.

LYGUS BUGS (Lygus spp.) were numerous and damaging to many crops in CALIFORNIA during the 1963 season and required considerable control. The problem of resistance made this control difficult in some areas. Lima beans and dry beans were among the crops most affected in California. COTTON FLEAHOPPER (Psallus seriatus) populations were widespread on snap beans in Cameron County, TEXAS, during the season.

THRIPS were unusually abundant on many cultivated, as well as native hosts, in CALIFORNIA during the 1963 season, and caused some damage to field beans in Solano County. Unspecified thrips caused 0-1 percent damage to beans in Weld, Adams, Delta and Mesa Counties, COLORADO; and thrips caused considerable injury to navy beans during early July in Saginaw and Shiawassee Counties, MICHIGAN, where late beans under stress from drought suffered the most damage. In MARYLAND, several species of thrips were destructive to beans and other crops during the summer months.

A LEAF MINER FLY (Liriomyza munda) infested a wide variety of crops, including beans, in TEXAS, with infestations in the winter garden area of Dimmit and Zavala Counties being sufficiently significant to warrant controls. Liriomyza spp. were heavy in table legumes in the Belle Glade area of Palm Beach County, FLORIDA, during the spring and were heavier where ineffective controls were used than where no control was applied. Populations were very much lighter in the fall. Unspecified leaf miner flies were heavy in spring field peas at Hastings, Saint Johns County, Florida, and abundant on lower leaves of southern peas at Bradenton, Manatee County, during the same time of year.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) populations on beans in CALIFORNIA developed light to medium locally in Orange County, were heavy in Butte County, medium in coastal Santa Barbara County, and heavy in San Diego County. The species was late in developing in 1963, and populations were not so severe as in past years in most locations in California. SPIDER MITES (Tetranychus spp.) were numerous and widespread during July and August on beans and other crops in MARYLAND, with home gardens being especially hard hit. Unspecified SPIDER MITES

heavily infested beans in home gardens in several VIRGINIA counties in July, and were a problem on beans, peas and other crops in several local areas in most sections of TEXAS.

GARDEN SYMPHYLAN (Scutigerella immaculata) damaged beans in southwestern WASHINGTON during the 1963 season, continuing into late July because of a cool, rainy season.

ASPARAGUS AND ONION INSECTS

Highlights:

ASPARAGUS BEETLES were not a particular problem during 1963. ONION MAGGOT damaged onion for the first time in Multnomah County, Oregon, and caused considerable loss to dry onions and green table onions in northeastern Colorado; the first generation in Wisconsin caused extensive damage to onions during the first week of June. ONION THRIPS was moderate to heavy in all onion-growing areas of Colorado, and caused heavy damage to green onions in Clark County, Nevada.

ASPARAGUS BEETLE (Criocerus asparagi) and SPOTTED ASPARAGUS BEETLE (C. duodecimpunctata) continued prevalent in western MONTANA during the 1963 season, but were below average in numbers and importance in UTAH. Both species appeared in East Greenwich, Kent County, RHODE ISLAND, on May 20, and were noted in normal abundance in Kingston, Washington County, and in Lincoln, Providence County, during the season. Neither species was a particular problem in NEW JERSEY during the 1963 season.

Asparagus beetle was frequently reported in VERMONT during the year, and first adults were found feeding on stalks of asparagus in most areas of DELAWARE by April 15. The pest was generally under good control in Delaware, with feeding injury very light except in one or two fields. Asparagus beetle populations on commercial asparagus in MARYLAND were about normal early in the season and on foliage during the summer. Numbers were heavy in some home gardens on the Eastern Shore of Maryland. Asparagus beetle was locally damaging to asparagus in SOUTH CAROLINA during mid-April, and was light on asparagus in Fresno, Fresno County, CALIFORNIA, during the season.

Spotted asparagus beetle was common on asparagus in the North Platte River Valley, NEBRASKA, in May, and was abundant on the same crop in southern portions of NORTH DAKOTA during the season. Moderate infestations of the beetle were reported in Rumford Point, Oxford County, MAINE, in mid-July, with damage light to that date.

An undetermined desert species of CICADA was light to medium on asparagus plantings in Coachella, Riverside County, CALIFORNIA.

ONION MAGGOT (Hylemya antiqua) heavily infested onions grown from sets in the Seward area of ALASKA. Infestation and damage to onions by this pest occurred for the first time in Multnomah County, OREGON, during 1963, but no damage to onion was reported from other areas of the State. Heavy onion maggot populations were reported in the Corvallis area of Ravalli County, MONTANA, and in other parts of the State as well. The long, wet spring appeared to have created ideal conditions for development of the pest in the State. Infestations of onion maggot were at the lowest level in several years in Lyon and Washoe Counties, NEVADA, but the pest was approximately normal in UTAH. Onion maggot was not a problem on onions in western or southeastern COLORADO, but the pest did cause considerable loss to dry onions as well as green table onions in the northeastern portion of the State. Apparently onion maggot is resistant to the control measures being used in northeastern Colorado. Losses were estimated to be 2-4 percent in the western area, 5-75 percent in the northeast and 1-2 percent in the southern area of the State.

The first generation of onion maggot in WISCONSIN caused widespread damage to onions during the first week of June. The second generation began the first week of July and caused some damage, although not so extensive as that of the first generation. Onion maggot was a serious problem in southern NEW JERSEY during the 1963 season, although it is not usually a problem in that area of the State.

ONION THRIPS (Thrips tabaci) populations were moderate to heavy in all onion-growing areas of COLORADO, ranging 20-100 per plant. Controls were applied in some fields but they did not appear too effective. In UTAH, onion thrips populations and/or injury on onion appeared to be about normal during the 1963 season. Populations and damage to green onions were heavy in Clark County, NEVADA, during March. Infestations on green onions varied light to heavy in Lyon and Washoe Counties from May to August, with treatments necessary in many instances. In CALIFORNIA, infestations of the pest on onion were variable in Orange, Imperial and Riverside Counties.

Onion thrips and WESTERN FLOWER THRIPS (Frankliniella occidentalis) were variable on onions and other crops in TEXAS during 1963, but did require controls in several areas of the State. Unspecified THRIPS were moderately heavy in onion fields near Portales, Roosevelt County, NEW MEXICO; treatments were required and control was good. In MARYLAND, several species of thrips were destructive to asparagus, onions and other crops during the summer months.

BLACK CUTWORM (Agrotis ipsilon) and VARIEGATED CUTWORM (Peridroma saucia) injured several plantings of onions and other crops over MARYLAND during the season, and unspecified CUTWORMS caused medium damage to garlic in Lyon County, NEVADA, during March.

BEET, SUGAR BEET, SPINACH AND CHARD INSECTS

Highlights:

BEET LEAFHOPPER was responsible for considerable reduction in sugar beet yields in two areas of Colorado by transmitting curly top virus, and the virus was again damaging to sugar beets in areas of Wyoming. GREEN PEACH APHID was medium to heavy on spinach in southern vegetable-growing areas of Texas. BEET WEBWORM was sufficiently numerous in areas of Colorado to require controls, and populations were high in Wyoming with controls applied to 80 percent of sugar beet fields. PACIFIC COAST WIREWORM severely damaged sugar beets in Walla Walla County, Washington, during May, and SPINACH LEAF MINER was more severe than usual on sugar beets and spinach in the eastern part of the State.

BEET LEAFHOPPER (Circulifer tenellus) occurred on sugar beets in local areas of San Luis Obispo, Los Angeles and Imperial Counties, CALIFORNIA, during the 1963 season. Populations developed in a normal pattern during the spring and summer, and congregated on Russian-thistle in the fall. An area of approximately 250,000 acres of range and brush lands in California was treated in the fall, with approximately a 98-percent kill of leafhoppers. The pest was below average in numbers and importance in UTAH during the season. Beet leafhopper movement from southern overwintering areas into COLORADO was expected to range light to moderate in 1963, but in two areas of that State, the pest caused considerable reduction in sugar beet yields by the transmission of curly top virus. Evidently a beet leafhopper population overwintered within or near these sugar beet-growing areas of Colorado and caused the resulting loss. In western Colorado, in Mesa, Delta and Montrose

Counties, this species caused 7-9 percent loss and in the southern counties of Baca and Prowers, losses were 5-10 percent. Curly top again damaged sugar beets in Big Horn, Hot Springs and Washakie Counties, WYOMING. A reduction in the beet leafhopper population was noticed in 1963, possibly due to a control program of spraying host weeds which included about 4,000 acres of wasteland bordering irrigated areas in Washakie County. The first beet leafhopper specimens for 1963 in Wyoming were recovered March 19 and the first infected plants were found in early June. Curly top symptoms in spinach were minimal in the winter garden area of Dimmit and Zavala Counties, TEXAS, and in the Rio Grande Valley area of the State.

Unspecified LEAFHOPPERS were a problem on sugar beets and other crops at several locations over CALIFORNIA during 1963.

GREEN PEACH APHID (Myzus persicae) was potentially severe on spinach early in April on the Eastern Shore of VIRGINIA, but control was exerted by a fungus. Infestations of the aphid were moderate to heavy on spinach in the winter garden area of Dimmit and Zavala Counties, the Rio Grande Valley and gulf coast area of TEXAS, and abundant on spinach and other crops in OHIO. Green peach aphid was abnormally scarce in eastern WASHINGTON during May, but increased on crops during June, with controls being required on sugar beets in late June and July.

Large populations of BEAN APHID (Aphis fabae) were recorded on sugar beets in the Walla Walla area of WASHINGTON during late September. SUGAR-BEET ROOT APHID (Pemphigus betae) was more abundant and more damaging than normal in UTAH during the 1963 season, and APPLE GRAIN APHID (Rhopalosiphum fitchii) was a problem on sugar beets in the Cambria area of San Luis Obispo County, CALIFORNIA.

LYGUS BUGS (Lygus hesperus and L. elisus) began damaging sugar beets and other crops in eastern WASHINGTON by late June and continued to be a problem for the remainder of the season.

BEET WEBWORM (Loxostege sticticalis) was medium on sugar beets in Coachella, Riverside County, CALIFORNIA, but was below average in numbers or importance in UTAH during the 1963 season. Beet webworm was present on sugar beets in sufficient numbers in Larimer, Weld, Morgan, Logan and Sedgwick Counties, COLORADO, to require the application of controls. A second generation of the pest occurred in some fields this year. Losses were light in Colorado, except in fields where the first generation occurred on late planted beets prior to time of thinning. Beet webworm populations were higher in WYOMING than in 1962, with about 80 percent of sugar beet fields requiring control efforts. Very little damge was found, however, because of properly timed controls. Beet webworm is considered one of the most destructive insects in Wyoming. Light trap collections in NORTH DAKOTA indicated the presence of large beet webworm adult populations, but, as was the case in 1962, there was virtually no larval activity on crops in the State.

BLACK CUTWORM (Agrotis ipsilon) ranged medium to heavy on sugar beets locally in Los Angeles and Butte Counties, CALIFORNIA. Unspecified CUTWORMS caused trace amounts of loss to sugar beets in COLORADO and were prevalent on the same host in CALIFORNIA.

POTATO FLEA BEETLE (Epitrix cucumeris) populations and damage on Swiss chard were light during June at Orono, Penobscot County, MAINE, and STRIPED FLEA BEETLE (Phyllotreta striolata) populations in WYOMING, were lower than those of 1962, with some damage occurring to seedling sugar beets during May and June in Fremont County. In NEVADA, damage to seedling sugar beets by unspecified FLEA BEETLES was severe in Pershing County and ranged light to medium in Washoe County in May. Infestations continued into July in these areas, but older beets suffered only light damage. In CALIFORNIA, two species of flea beetles (Hemiglyptus basalis and Epitrix sp.) caused some damage to plantings of sugar beets and other crops.

Adults of PACIFIC COAST WIREWORM (Limonius canus) were flying during mid-April in eastern WASHINGTON and damage to sugar beets was severe in Walla Walla County in May. Infestations of this species have been increasing on crops in Washington for the last several years. Limonius sp. caused slight feeding damage to sugar beets in WYOMING, the largest populations being found in Goshen, Washakie, Big Horn, Hot Springs and Fremont Counties. These 1963 populations were about the same as those present during the preceding year. This pest is among the more destructive insects in Wyoming.

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) was present only in trace numbers during the 1963 season in NORTH DAKOTA. Infestations of this pest in sugar beets were about the same as during 1962 in WYOMING, with only a small amount of damage being found and most infestations occurring in Washakie and Big Horn Counties. Sugar-beet root maggot caused trace amounts of loss to sugar beets in COLORADO and was approximately normal in numbers and damage in UTAH.

SPINACH LEAF MINER (Pegomya hyoscyami) infestations and damage on spinach and beets were moderate in the Scarboro and Cape Elizabeth areas of Cumberland County, MAINE, by mid-June. In late June, heavy infestations and damage were observed on beet greens in Berwick, York County, and light infestations and damage on spinach beets and Swiss chard were reported from Monmouth, Kennebec County. Heavy infestations and moderate damage by spinach leaf miner were found on beets and Swiss chard in the Presque Isle area of Aroostook County, Maine, in mid-July. This leaf miner fly had damaged spinach and chard in Kingston, Washington County, RHODE ISLAND, by June 12. Severe damage to table beet plants in Lane County, OREGON was probably caused by spinach leaf miner. An unusual infestation of this pest occurred on spinach in San Juan County, WASHINGTON, and the species was more severe than usual on sugar beets and spinach in eastern Washington. Pegomya sp. was heavy in garden beets and chard on the Kenai Peninsula of ALASKA.

An EPHYDRID FLY (Psilopa leucostoma) mined sugar beet foliage at Walla Walla, WASHINGTON, during the 1963 season.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) migrated from clovers and other spring hosts to sugar beets and other crops in central WASHINGTON during the summer of 1963, with unseasonably hot weather promoting rapid buildup and damage. Unspecified SPIDER MITES were medium on maturing sugar beets in Churchill County, NEVADA, during late September and early October. An ACARID MITE (Tyrophagus dimidiatus) infestations were medium on spinach in Irvine, Orange County, and at Woodland, Yolo County, CALIFORNIA. In general, MITES were prevalent early on spinach and sugar beets in California, and as the summer progressed, truck crops were more generally infested. Weather was not conducive to a general buildup, however.

ARTICHOKE AND LETTUCE INSECTS

Highlights:

CABBAGE LOOPER on lettuce necessitated controls in New Mexico and Arizona, and controls were necessary on this crop in Arizona to prevent losses from TOMATO FRUITWORM, FALL ARMYWORM and BEET ARMYWORM. SIX-SPOTTED LEAFHOPPER damaged lettuce in Maine, and aster yellows, transmitted by this species, was below normal in New York and in Wisconsin. Infestations of ARTICHOKE PLUME MOTH and of a WEEVIL (Brachyrhinus cribricollis) were of some concern on artichoke in California during the 1963 season.

CABBAGE LOOPER (Trichoplusia ni) infestations ranged light to moderately heavy in lettuce fields in Dona Ana County, NEW MEXICO, and required control applications at regular intervals. Although parasites aided in keeping down large populations of this pest in ARIZONA, controls were still necessary on lettuce to prevent heavy losses. Larvae of TOMATO FRUITWORM (Heliothis zea) built up to damaging numbers in lettuce fields in Arizona during October and November, and continuous controls were essential to maintain relatively noneconomic populations. FALL ARMYWORM (Laphygma frugiperda) necessitated control efforts to reduce larval numbers in lettuce fields in the State, particularly in Yuma, Maricopa and Pinal Counties. BEET ARMYWORM (Spodoptera exigua) larvae caused considerable damage to lettuce fields in the southern portion of Arizona, averaging as high as 45 per 100 plants in some fields.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) infestations were moderate but caused severe damage to head lettuce by late July in the Scarboro area of Cumberland County, MAINE. Moderate infestations were noted in Monmouth, Kennebec County, with damage by the second generation being moderate by the second week of August. Six-spotted leafhopper populations were normal on lettuce in NEW YORK, but aster-yellows disease, for which this species is a vector, was below normal. Six-spotted leafhopper adults were noted on rye April 9 in WISCONSIN, which is three weeks earlier than in 1962. Populations increased noticeably by the first week of May, at which time nymphs were becoming apparent. Although numerous throughout the season and observed into mid-November in Wisconsin during 1963, six-spotted leafhopper was not too viruliferous; however, at least one lettuce planting in Portage County became seriously infected with aster yellows.

A COREID BUG (Arhyssus scutatus) was heavy on lettuce in Oso Flaco, San Luis Obispo County, CALIFORNIA, and LYGUS BUGS (Lygus spp.) were a problem on lettuce and other crops in many locations in the State. A FALSE CHINCH BUG (Nysius sp.) ranged light to medium on lettuce in Santa Cruz County, California.

APHIDS were more numerous than usual on undersides of basal lettuce leaves in ALASKA, but caused no serious damage; however, SLUGS severely damaged lettuce in southeastern port areas of the State during the 1963 season.

Insect infestations of artichoke were of some concern in CALIFORNIA. ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) was heavy on that crop in Santa Barbara and San Mateo Counties, medium on thistle in San Luis Obispo County, and was heavy locally on artichoke in Marin County. A WEEVIL (Brachyrhinus cribricollis) was heavy in artichoke plantings in Santa Maria, Santa Barbara County, during 1963.

CUCURBIT INSECTS

Highlights:

STRIPED CUCUMBER BEETLE was damaging in Maine, more destructive in Maryland than in several years, and heavy in Missouri. SQUASH BUG was heavy in southern Nevada and necessitated controls in most areas of Texas. THRIPS required controls in Texas and were destructive to several crops in Maryland.

STRIPED CUCUMBER BEETLE (Acalymma vittata) infestations and damage were reported as heavy in Auburn, Androscoggin County, MAINE, and from other areas of Androscoggin and Sagadahoc Counties in mid-June. Striped cucumber beetle was generally present over RHODE ISLAND during the 1963 season, with first adults being seen

in Washington, Kent County, on June 5. The pest was less conspicuous in Rhode Island than it was in 1962. In NEW YORK, this beetle remained very light during the season. Striped cucumber beetle populations on young cucumbers, cantaloups and squash on the Eastern Shore of MARYLAND were the heaviest and most destructive in severeal years. Cucumber beetles, principally striped cucumber beetle, began appearing in large numbers in blacklight traps in Dane County, WISCONSIN, the first week of June, with noticeable damage to cucumbers and squash occurring during the next few weeks. Heavy infestations of striped cucumber beetle were reported on watermelons and cantaloups in west central and northwestern areas of MISSOURI during 1963.

SQUASH VINE BORER (Melittia cucurbitae) adults appeared in WISCONSIN during the last week of June; damage was evidently light, primarily in home gardens and on certain varieties of squash. The pest heavily damaged squash in Jefferson County, TEXAS, in 1963.

SQUASH BUG (Anasa tristis) populations were heavy in NEVADA, especially in the southern counties, where the species is the limiting factor in growing squash. Squash bug was below average in numbers or importance in UTAH this season, but necessitated the treatment of squash and melons in most areas of TEXAS. The bug was reported as feeding on truck crops and in gardens in MISSOURI, and was more of a pest in home gardens on the Eastern Shore of VIRGINIA than for the past several years. Several heavy infestations of squash bug were reported and observed on squash and pumpkins throughout MARYLAND during August. This species, in association with HORNED SQUASH BUG (Anasa armigera), injured squash and pumpkins at Havre de Grace, Harford County, Maryland.

LYGUS BUGS (Lygus spp.) were a problem on cucumbers and other crops in many locations over CALIFORNIA during 1963.

MELON APHID (Aphis gossypii) was more abundant than usual on cucurbits in OHIO, and ranged light to heavy on these crops in the winter garden area of Dimmit and Zavala Counties, TEXAS. Melon aphid was heavy on melons in Merced and San Joaquin Counties, CALIFORNIA, and light on squash in Yolo County.

POTATO LEAFHOPPER (Empoasca fabae) was considerably above normal and caused extensive damage to squash, pumpkins and other crops in most sections of MARYLAND during the 1963 season. Unspecified LEAFHOPPERS were a problem on melons, cantaloups and other crops in several localities over CALIFORNIA.

WESTERN FLOWER THRIPS (Frankliniella occidentalis) and ONION THRIPS (Thrips tabaci) were variable on melons and other crops in TEXAS, requiring controls in several areas of the State. Several species of THRIPS were destructive to cucumbers, cantaloups and other crops during the summer months in MARYLAND.

A LABIDURID EARWIG (Euborellia cincticollis) was fairly heavy on cantaloup fruit in Imperial County, CALIFORNIA.

Heavy numbers of a LEAF MINER FLY (Liriomyza munda) occurred on a wide variety of crops in TEXAS, including cantaloups and watermelons. Infestations in the winter garden area of Dimmit and Zavala Counties were sufficiently significant to justify controls. Heavy infestations of Liriomyza spp. occurred in cucurbits and other crops during the spring in FLORIDA. Infestations were heavier when an ineffective insecticide was used, than when no control was applied. Populations of these leaf miner flies were much lighter in the fall of the year in Florida.

ROOT MAGGOTS (Hylemya spp.) were a local problem on melon and cucumber plantings in San Joaquin County, CALIFORNIA, and late populations of a VINEGAR FLY (Drosophila melanogaster) developed in harvested melon fields in the State.

SPIDER MITES (Tetranychus spp.) were numerous and widespread during July and August on cantaloups, watermelons and other crops in MARYLAND, being especially serious in home gardens. MITES in general, were prevalent early in the season

on melons in CALIFORNIA, and generally infested truck crops as the summer progressed. Weather in the State was not conducive to a rapid buildup.

CENTIPEDES were a problem on squash seedlings in the San Fernando Valley of Los Angeles County, CALIFORNIA.

CARROT AND CELERY INSECTS

CABBAGE LOOPER (Trichoplusia ni) and small numbers of other NOCTUID larvae were usually present in 10 to 30 percent of celery plants sampled during the fall in the Sanford area of Seminole County, FLORIDA, and caused light to medium damage.

A WEEVIL (Hyperodes texana) infested carrots in the Rio Grande Valley and a FALSE CHINCH BUG (Nysius sp.) infested the same host in localized areas of Hidalgo County, both in TEXAS. LYGUS BUGS (Lygus spp.) were a problem on carrots in many locations of CALIFORNIA.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was generally light on carrots in NEW YORK during the 1963 season, and aster-yellows disease, transmitted by this species, was below normal in the State. Unspecified LEAFHOPPERS were a problem on the same crop in several locations over CALIFORNIA.

Based on weekly samples from a commercial farm at Sanford, Seminole County, FLORIDA, a LEAF MINER FLY (Liriomyza sp.) infested most older celery plants, but tended to be sparse in younger plants. Damage varied from light to heavy.

SPRINGTAILS were numerous in low spots in fields in the Tanana Valley and on the Kenai Peninsula in ALASKA. The pests were sufficiently numerous in harvested celery in the Wasilla area of the Matanuska Valley that the crop was rejected upon inspection. Interiors of stalks were filled with eggs and adults, but there was no evidence of feeding.

SWEETPOTATO INSECTS

Severe freezes in the winters of 1962 and 1963 destroyed wild host plants and sweetpotato crop refuse which enable SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) to overwinter in fields throughout the generally infested area. This natural phenomenon offered an unusual opportunity to delimit and to eliminate infestations. The northern boundary of the sweetpotato weevil infestation has been clearly established and substantial gains made in eliminating the pest. All infestations have been eradicated from a commercial production area near Jackson, MISSISSIPPI, and 400 of the original 500 infestations in the commercial area of southern GEORGIA have been eliminated. During the past two years, infestations have been eliminated from East Feliciana and West Feliciana Parishes, LOUISIANA, including the St. Francisville section where the largest sweetpotato market in the State is located. Only 39 infestations remained in ALABAMA, none of which are in commerical areas, and a substantial buffer zone has been established between commercial sweetpotatoes grown in northeastern TEXAS and the generally infested area to the south. Through vigorous control efforts, sweetpotato weevil populations have been substantially reduced in the remainder of the infested area.

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) adults caused noticeable leaf injury to sweetpotatoes during June on the Eastern Shore of MARYLAND, and caused severe damage to the same host in localized areas of the Eastern Shore of VIRGINIA during the same period. Larval damage to roots of sweetpotato by sweetpotato flea beetle continued to increase in SOUTH CAROLINA during 1963.

BANDED CUCUMBER BEETLE (Diabrotica balteata) ranged 0-70 per 100 sweeps on sweetpotatoes in East Baton Rouge, St. Martin, St. Landry, Acadia and Lafayette Parishes, LOUISIANA, during late August. Larvae were heavy in many fields, with controls being unsatisfactory.

SOUTHERN POTATO WIREWORM (Conoderus falli) and TOBACCO WIREWORM (C. vespertinus) damage to sweetpotatoes in NORTH CAROLINA appeared to be slightly less than that of 1962. Damage in the Benson-Newton Grove area of the State was very light in most fields and shallow holes were common on sweetpotatoes from some fields in southeastern counties. Damage by southern potato wireworm continued to increase on sweetpotatoes in SOUTH CAROLINA. Tobacco wireworm infestations ranged light to moderate on sweetpotatoes in southwestern GEORGIA during the 1963 season.

SWEETPOTATO HORNWORM (Agrius cingulatus) caused light to moderate defoliation of sweetpotatoes in southern GEORGIA, and infestations of VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) were heavy on sweetpotato foliage in the southeastern portion of that State during the season.

BLACK CUTWORM (Agrotis ipsilon) and VARIEGATED CUTWORM (Peridroma saucia) injured several plantings of sweetpotatoes and other crops over MARYLAND during 1963, and MORNING-GLORY LEAF MINER (Bedellia somnulentella) was heavy on sweetpotatoes in the Oceanside area of San Diego County, CALIFORNIA.

STRAWBERRY INSECTS

Highlights:

ORANGE TORTRIX was of considerable importance on strawberries in California during most of the season. CYCLAMEN MITE was important on the crop throughout Minnesota, resulting in reduction of marketable berries. TWO-SPOTTED SPIDER MITE required extensive controls on strawberries in New Jersey.

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) adults were abundant on small strawberry plantings in Whitman County, WASHINGTON, by early May, and the pest was about normal during the 1963 season in UTAH. Adult activity was very prevalent in Lancaster County, NEBRASKA, in late April, and infestations were above normal in ARKANSAS during the 1963 season. Strawberry leaf roller was normal in abundance on strawberries in NEW JERSEY and NEW YORK. Unspecified STRAWBERRY LEAF ROLLERS injured several old and new strawberry plantings on the Eastern Shore of MARYLAND. STALK BORER (Papaipema nebris) damaged strawberries in late June in Richmond and Charleston, Washington County, RHODE ISLAND.

ORANGE TORTRIX (Argyrotaenia citrana) was of considerable importance on strawberry over CALIFORNIA during most of the 1963 season there.

Moderate to heavy populations of STRAWBERRY WEEVIL (Anthonomus signatus) on home plantings of strawberries in the Orono area of Penobscot County, MAINE, caused moderate to heavy damage to plants. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) numbers and injury on strawberry were approximately normal in UTAH

during 1963, but another WEEVIL (B. cribricollis) was medium locally on strawberry plantings in Orange County, CALIFORNIA. ROSE CHAFER (Macrodactylus subspinosus) infestations and damage on strawberries were moderate in some areas of York County, MAINE, during mid-July.

TARNISHED PLANT BUG (Lygus lineolaris) populations were unusually light on strawberry in NEW YORK but POTATO LEAFHOPPER (Empoasca fabae) was common. SPITTLEBUGS were normal on strawberry in NEW JERSEY, but were numerous in strawberry beds in southeastern ALASKA during the 1963 season.

STRAWBERRY APHID (Pentatrichopus fragaefolii) was generally light on strawberry in Orange County, CALIFORNIA. APHIDS, principally Pentatrichopus thomasi, ranged light to moderate on strawberries in all sections of MARYLAND during the season, and unspecified species were present on strawberries in normal numbers in NEW JERSEY.

CYCLAMEN MITE (Steneotarsonemus pallidus) infestations on strawberry in MAINE were, for the most part, limited to home plantings, with no problems being reported by commercial growers. Populations of this mite remained generally very low because of the dry season in Maine during 1963. Cyclamen mite was normal in abundance on strawberry during the season in NEW YORK, but posed a considerable problem on everbearing strawberries over the entire State of MINNESOTA, resulting in reduction of marketable yields of berries. This mite was below average in numbers and importance in UTAH, and was light on strawberries in Santa Barbara and Santa Clara Counties, CALIFORNIA.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was generally light in strawberry-growing areas of CALIFORNIA, with a few locally medium to heavy infestations reported. Two-spotted spider mite was observed on strawberries throughout NORTH DAKOTA, required extensive controls in NEW JERSEY and was somewhat heavier than usual in the western portion of NEW YORK during the season. EUROPEAN RED MITE (Panonychus ulmi) was heavy on strawberries in Santa Barbara County, CALIFORNIA. Unspecified SPIDER MITES were numerous on some strawberry plantings in the Matanuska Valley of ALASKA during the 1963 season in that State.

GARDEN SYMPHYLAN (Scutigerella immaculata) damaged strawberries in southwestern WASHINGTON, continuing into late July because of a cool, rainy season.

BRAMBLE INSECTS

JAPANESE BEETLE (Popillia japonica) adults were heavy on raspberries in sections of Queen Annes County, MARYLAND, in 1963. In RHODE ISLAND, local infestations of RASPBERRY CANE BORER (Oberea bimaculata) were present during early June in Providence County. A RASPBERRY FRUITWORM (Byturus rubi) was numerous on raspberries throughout the raspberry-growing areas of ALASKA; and a WEEVIL (Brachyrhinus sp.) caused some concern to processors in Multnomah County, OREGON, by infesting raspberries to the extent that adults could not be washed out of the finished product. STRAWBERRY CROWN MOTH (Ramosia bibionipennis) severely damaged red raspberry plants in Clark County, WASHINGTON, and a LEAF ROLLER MOTH (Platynota stultana) was a pest of bushberries in a few locations in CALIFORNIA during 1963. HEMISPHERICAL SCALE (Saissetia hemisphaerica) was sufficiently abundant on blackberries at Largo, Pinellas County, FLORIDA, to cause some economic damage. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) populations in southwestern MICHIGAN fruit areas reached moderate to heavy levels in some cane berry and fruit plantings in July. Moderate populations of two-spotted spider mite were reported to have caused light to moderate damage to raspberries in Cumberland County, MAINE, early in August.

MISCELLANEOUS TRUCK AND GARDEN CROP INSECTS

CUTWORMS were of concern on truck and vegetable crops in various areas of the Nation during the 1963 season. FALL ARMYWORM (Laphygma frugiperda) damaged several vegetable crops on the Eastern Shore of VIRGINIA in early September. Populations of BEET ARMYWORM (Spodoptera exigua) were much more serious in the Bradenton area of Manatee County, FLORIDA, than usual during the season, being difficult to control with the usual insecticidal treatment. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused heavy, widespread damage to various vegetables in the winter garden area of Dimmit and Zavala Counties, TEXAS. DINGY CUTWORM (Feltia subgothica), BLACK CUTWORM (Agrotis ipsilon) and VARIEGATED CUTWORM (Peridroma saucia) caused some damage during early spring in MISSOURI, but infestations were considerably lower in 1963 than in 1962. In CALIFORNIA, CABBAGE LOOPER (Trichoplusia ni) ranged light to heavy on most truck crops in all vegetable-growing areas most of the year, and black cutworm was medium on some truck crops in Chula Vista, San Diego County. Black cutworm, variegated cutworm, ALFALFA LOOPER (Autographa californica) and Dargida procincta heavily damaged all truck crops in the Willamette Valley of OREGON during May, June and July, necessitating chemical controls. Variegated cutworm was epidemic on most vegetable and some field crops throughout western WASHINGTON during the 1963 season, the problem being aggravated by growers who did not attempt control until the larvae were large. In ALASKA, populations of Euxoa spp. were severe only in the Hope area of Cook Inlet, where vegetable gardens were severely damaged. Unspecified CUTWORMS caused considerable damage in a few fields of vegetables on the Eastern Shore of VIRGINIA in early July and damaged several vegetable crops in the area during early September. Weekly surveys in SOUTH CAROLINA showed cutworms to be much less abundant in 1963 than in previous years. Cutworms were important vegetable pests in MINNESOTA, and occurred in gardens over NORTH DAKOTA where populations were heavy in some areas.

SALT-MARSH CATERPILLAR (Estigmene acrea) was damaging to some truck crops over CALIFORNIA, and an unspecified WOOLLYBEAR caused considerable damage to vegetables in Jefferson and Travis Counties, TEXAS. GARDEN WEBWORM (Loxostege similalis) was reported feeding on truck crops and in gardens in MISSOURI during the season.

Heavy populations of TARNISHED PLANT BUG (Lygus lineolaris) had caused moderate damage to general garden crops in the North Pownal-Scarboro area of Cumberland County, MAINE, by late July. GARDEN FLEAHOPPER (Halticus bracteatus) fed on truck crops and in gardens in MISSOURI during 1963.

THRIPS were abundant generally on cultivated and wild hosts in CALIFORNIA, vegetable and truck crops being generally infested as well. SPINACH LEAF MINER (Pegomya hyoscyami) was generally normal in numbers and/or injury in UTAH. A LEAF MINER FLY (Liriomyza sp.) infested a wide variety of crops, including okra, in the winter garden area of Dimmit and Zavala Counties, TEXAS. These infestations required the application of control measures. TEXAS LEAF-CUTTING ANT (Atta texana) was heavy in localized areas of Washington County, Texas.

GRASSHOPPERS were considered the number one pests of gardens throughout MISSOURI during the 1963 season, because of the high number of reports received concerning infestations of Melanoplus spp. in these habitats. Many species of grasshoppers damaged various garden crops to a varying degree over TEXAS, and caused extensive damage to truck crops and home gardens in Bernalillo, Sandoval and Valencia Counties, NEW MEXICO, during June. In CALIFORNIA, grasshoppers caused local damage to truck crops in Stanislaus County, and FIELD CRICKETS (Gryllus spp.) ranged medium to heavy on truck crop plantings in Imperial County.

EUROPEAN EARWIG (Forficula auricularia) was more of a problem in home gardens than commerical plantings in CALIFORNIA during 1963, and damaged vegetables in home gardens in one area of Santa Fe, Santa Fe County, NEW MEXICO. European earwig is increasing on truck crops in western portions of MONTANA.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was generally light on truck crops in CALIFORNIA during the 1963 season, and was not the problem it has been in the past. SPIDER MITES occurred on truck crops and in gardens in MISSOURI, and caused considerable damage to vegetable crops on the Eastern Shore of VIRGINIA during August and September.

Adult SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) collections were made during mid-May in MICHIGAN, which is earlier than has been reported during recent years. Below freezing temperature in many areas of the State on June 21 and 22 appeared to have greatly reduced populations. Commercial problems with aster yellows during the season were low in Michigan.

GARDEN SYMPHYLAN (Scutigerella immaculata) damage to vegetable crops continued high in irrigated areas of western OREGON in 1963, but unspecified SYPHYLANS were below average in numbers or importance in UTAH during the season.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 14 April 3, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Hyattsville, Maryland 20781

Volume 14 April 3, 1964 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG remains light in New Mexico and Oklahoma; ENGLISH GRAIN APHID also light in Oklahoma. (p. 273). BROWN WHEAT MITE threatening in some areas of Oklahoma; heaviest counts 750 per linear foot. (p. 274).

A WEEVIL (Hyperodes texana) continues light to heavy in Hidalgo County, Texas, carrot fields; 50 percent of plants damaged in several fields. (p. 275).

NANTUCKET PINE TIP MOTH heavy locally in Arkansas. WESTERN PINE BEETLE killing ponderosa pine in French Valley area of Palomar Mountains, California, and BLACK TURPENTINE BEETLE causing heavy damage locally in southern Houston County, Texas. A possible heavy infestation of a PINE SAWFLY (Neodiprion taedae linearis) indicated in Arkansas. (p. 276). SPIREA APHID extremely heavy on spirea in central Alabama. (p. 277).

CLOVER MITE a nuisance to homeowners in several States, and swarms of SUBTERRANEAN TERMITES reported in several States from New Jersey to California. (pp. 278-79).

SOME FIRST RECORDS OF THE SEASON

SPOTTED ALFALFA APHID in Arkansas; hatching of GREEN PEACH APHID in Mesa County, Colorado, on March 18; APPLE APHID hatching March 23 in Montgomery County, Maryland; and early instars of EASTERN TENT CATERPILLAR present in Alabama and Arkansas.

DETECTION

Six MOTHS reported for first time in Delaware; Macrobotys thestealis, Herculia intermedialis, Arta statalis, (Mompha eloisella, Eucosma dorisignatana and Xylesthia pruniramiella. (p. 280). CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) and an ANTHOMYZID FLY (Mumetopia nigrimana) recorded for first time in Hawaii. New county records of significance were FACE FLY (Musca autumnalis) in Washington County, Colorado (p. 280) and IMPORTED FIRE ANT (Solenopsis saevissima richteri) in Coweta County, Georgia, Humphreys County, Mississippi, and Nacogdoches County, Texas. (p. 280). New Island records of importance in Hawaii were BLACK THREAD SCALE (Ischnaspis longirostris) on Maui, a MOSQUITO (Aedes vexans nocturnus) on Molokai and a SARCOPHAGID FLY (Sarcophagula occidua) on Molokai, Maui and Kauai. (pp. 283, 284).

SPECIAL REPORTS

Potato Aphid Survey in New Jersey. (p. 275).

Status of the Screw-worm in the Southwest. (p. 279). Four additional cases found in Texas.

Hawaiian Insect Notes. (p. 283).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 284).

Summary of Insect Conditions in the United States - 1963
Insects Affecting Man and Animals. (p. 286).
Household and Structural Insects. (p. 300).

Reports in this issue are for week ending March 27 unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 30

Winter continued over much of the Nation during the entire week. At the beginning of the week, while one storm moved eastward across the northern Great Plains, another storm was developing in the Great Basin. Blizzard conditions -- high winds, low temperatures, and the air filled with blowing snow -- prevailed from the eastern slopes of the northern Rocky Mountains to Minnesota. Winds reached 50 m.p.h., temperatures dropped far below zero, and visibility was, at times, less than one mile. Unsettled weather continued in the Far Northwest. Showers fell in the lowlands and snow in the mountains. Snow continued in the southern Rocky Mountains. Snow, which began at Flagstaff, Arizona, on Sunday, accumulated to 21 inches by midnight Tuesday. On Tuesday morning, the temperature at Lewiston, Montana, plunged to 20° below zero. The arctic air spread eastward and southward. North Dakota registered subzero temperatures on six consecutive nights. The highest temperature in North Dakota during the week was 33° at Dickenson on the 26th.

Warm, moist, gulf air moved northward above the arctic air. Snow fell from the Rocky Mountains eastward across the northern Great Plains. Sleet, freezing rain, and severe thunderstorm activity occurred south of the snow area. A thunderstorm at Topeka, Kansas, produced a combination of sleet, freezing rain, and hail. Hail as large as golf balls fell at Kansas City, Missouri. At some places, thunderstorms and snow occurred simultaneously. Several tornadoes struck the mid-section of the country on Wednesday, March 25. Some of the places hit by tornadoes are Garwood and Centerville, both in Missouri, and Addison, Alabama. By Friday morning, severe cold gripped much of the eastern half of the Nation. Subzero temperatures prevailed across the Northern States from North Dakota to Michigan and freezing temperatures extended as far south as the northern portions of Mississippi and Alabama. Birmingham, Alabama, registered 31° Friday morning. A few stations in northern Georgia registered minimum temperatures in the lower 20's. Meanwhile, temperatures increased over Western States, becoming much warmer in Montana and rising to above normal in Nevada.

A heavy snowstorm hit Chicago, Illinois, Sunday morning, leaving from 3 to 9 inches in different parts of the metropolitan area. This was followed by more arctic air dropping the temperatures to near zero over much of the northern Great Plains. The snowstorm moved eastward, leaving snow over the Great Lakes region, the upper Ohio River Valley, parts of Pennsylvania, and nearby areas. Dulles Airport, near Washington, D.C., received 5 inches Monday morning.

Temperatures averaged from 1° to 4° above normal over the Trans-Pecos and Edwards Plateau of Texas, along the coast in Washington, and over parts of Pennsylvania and nearby portions of neighboring States. Over the remainder of the Nation, temperatures averaged below normal. Over much of the northern Rocky Mountains and northern Great Plains temperatures ranged from 10° to 25° below normal. The largest departures were in North Dakota where the temperatures averaged from 21° to 25° below normal. Only a few widely scattered areas west of the Mississippi River received more than 0.50 inch of precipitation. Most of these scattered areas were at high elevations such as Denver, Colorado, and Flagstaff, Arizona. The heaviest amounts, 2.00 inches or more, fell over northern Georgia and nearby parts of neighboring States. A few stations in northern Georgia and northeastern Alabama registered more than 5.00 inches on March 25 and 26. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First and second-stage larvae on alfalfa in eastern Sussex County; injury light. (Burbutis). COLORADO - Alfalfa showing green in Prowers County; no indications of weevil to date. (Ext. Serv.). Most alfalfa still dormant in State with controls for this species being applied. (Bulla).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - Light numbers noted in some alfalfa checked in southwest and west central areas. (Okla. Coop. Sur.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Considerable pupation occurring in alfalfa in Yuma and Maricopa Counties; most of larval population full grown, with only few small larvae found. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ALABAMA - Numerous adults noted in flight in Hale County. Few noted in Tuscaloosa County. (Shuler).

SPOTTED ALFALFA APHID (Therioaphis maculata) - CALIFORNIA - Medium on alfalfa in Seeley, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Infestations light to very spotted in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). OKLAHOMA - Only occasional specimens found in scattered southwest area fields checked; most inspections negative. (Okla. Coop. Sur.). ARKANSAS - First specimens noted in Washington County (northwest); numbers low. (Ark. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Populations general but still non-economic in alfalfa fields of Pinal, Yuma and Maricopa Counties. (Ariz. Coop. Sur.). OKLAHOMA - Very light and scattered on alfalfa checked in southwest, west central and south central areas; many checks negative. (Okla. Coop. Sur.). ARKANSAS - Counts remain about same as past 2 weeks. (Ark. Ins. Sur.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Few light infestations found in alfalfa in north Gila Valley and on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Counts on vetch in Washington County (northwest) increased but remain low; less than one per square foot. (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increases noted on alfalfa fields of Yuma, Maricopa and Pinal Counties. Averaged 20 per 100 sweeps in Yuma County and 22 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Infestations on alfalfa heavy in north Gila Valley and on Yuma Mesa and light in Yuma Valley of Yuma County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Remains light in small grain fields in Chaves and Eddy Counties; averaged 1-3 per linear foot in fields checked. (N.M. Coop. Rpt.). OKLAHOMA - Populations remain generally noneconomic on small grains throughout State. Only occasional spots in fields showed reproduction in southwest counties; most fields had only occasional specimens, or were void of infestation. One report of 50 per linear foot received from Mayes County (northeast). (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light in scattered areas of southwest counties. Although few in number, this species is most numerous aphid on grains. Light numbers on upper leaves of wheat plants in southern Cotton County. (Okla. Coop. Sur.).

A FLEAHOPPER (Spanogonicus sp.) - ARIZONA - Very heavy on Indian wheatgrass in Yuma County. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Threatening in some areas. Light to moderate on wheat checked in Washita, Kiowa, Greer, Harmon, Jackson, Tillman and Cotton Counties (southwest). Heaviest counts (up to 750 per linear foot) observed in Mangum area, Greer County. Approximately 600 acres of wheat treated in Mountain Park area, Kiowa County. Surveys in area failed to reveal infestation, but some damage was apparent. Subfreezing temperatures possibly account for failure to find mites on plants. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Heavy, localized populations damaging oats in Bell County. (Hobbs, Fisher).

FRUIT INSECTS

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - This and Synanthedon pictipes (lesser peach tree borer) noted causing serious damage to poorly managed peach trees in Tuscaloosa, Bibb and Lee Counties. No pupation noted. (Grandberry, Cain, Shuler, et al.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Adults being caught in bait pans in peach orchard at Wheeler Ridge, Kern County, since mid-March. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - First hatching noted March 18 in Mesa County. Fruit trees mostly dormant; snow and cool weather continued. Overwintering egg counts completed in Mesa County, with 80 percent fewer eggs than in 1963. This should mean light populations in that county, with moderate numbers counted in Delta and Montrose Counties. (Bulla).

APPLE APHID (Aphis pomi) - MARYLAND - Hatching occurred March 23 on apple at Fairland, Montgomery County. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Eggs of undetermined species noted on apple twigs at locality in Cecil County. (U. Md., Ent. Dept.). DELAWARE - Young nymphs present on apple buds in areas of Sussex County. (Kelsey).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - COLORADO - Crawlers present in apricot and some peach orchards where controls not used in 1963. Some dormant spraying on fruit now being applied in Mesa County. (Bulla). FLORIDA - Severe on stem of plum at nursery in Macclenny, Baker County. (Collins, Mar. 9).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Heavy in almond trees in Oakland, Alameda County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspyresia caryana) - ALABAMA - Small numbers of larvae and pupae noted under few pecan trees on lawns in Tuscaloosa County. (Shuler, Cain, et al).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on walnut trees in Gilroy and apple nursery stock in Mountain View, Santa Clara County. (Cal. Coop. Rpt.).

A SOFT SCALE (Lecanium sp.) - CALIFORNIA - Probably L. pruinosum, heavy on walnut street trees in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

A PLANT BUG (Pycnoderes balli) - FLORIDA - Light on calamondin at North Miami, Dade County. Det. by R. F. Hussey. (DeHaven, Mar. 18).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on orange trees in Dixon, Solano County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on lemon trees in Mecca, Riverside County. This is not normally a desert inhabiting species and occurrence in this area is unusual. (Cal. Coop. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Inspection of 3,860 traps 7,705 times in 17 States, the Federal District and the Territory of Quintana Roo negative. (PPC, Mex. Reg., Feb. Rpt.). FLORIDA - Number of traps in State now total 15,102; 475 are McPhail. Traps inspected on 3, 2 and 1-week schedules. Trapping continues negative. (PPC, South. Reg., Feb. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Incipient infestation consisting of 9 leaves on 5 trees in grove in Municipio Villagran, Tamaulipas. This is first known infestation in area since December 1958 and is nearest infestation to chemical control zone in State of Nuevo Leon. Inspection of 58,751 trees on 172 properties showed 952 trees infested on 13 properties in Municipios Villagran, Hidalgo, Guemez and Padilla in the biological control zone of Tamaulipas. Most infestations light; several trees with medium infestations. Chemical Control Zone - Total of 88,886 citrus trees, including 742 citrus nursery trees, on 2,418 properties inspected and found negative. (PPC, Mex. Reg., Feb. Rpt.).

AN ARMORED SCALE (Diaspis cocois) - CALIFORNIA - Infesting nursery stock of Jubaea spectabilis in San Diego, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Infesting 4.5 percent of 200 cabbage plants inspected in field at Sanford, Seminole County. Damage light. Plants ready for harvest. (Desin).

A WEEVIL (Hyperodes texana) - TEXAS - Continues light to heavy in Hidalgo County carrot fields; of 18 fields examined, 16 infested. Several fields with 50 percent of plants damaged; infestation ranged downward from this level in other fields. (Texas Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Nine newly infested properties found in LOUISIANA and 40 properties released from regulation. All old banks cleaned in Simpson, Jones, Lawrence and Jefferson Davis Counties, MISSISSIPPI; all properties in Amite County infested in 1962 and 1963 inspected with negative results. In ALABAMA, several bushels of infested sweetpotatoes destroyed in Mobile area retail stores; one newly infested property found in Covington County. Last 2 infested properties in Ware County, GEORGIA, released from regulation. (PPC, South Reg., Feb. Rpt.).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Small populations continue in cantaloup fields in Yuma County. (Ariz. Coop. Sur.).

Potato Aphid Survey in New Jersey - Results of survey for overwintering eggs of potato aphid (Macrosiphum euphorbiae) show that population is up from that of 1963, but the viability of eggs is lower. Total number of eggs and percent viability, respectively, by year, as follows: 1964 - 1,192 and 45.6; 1963 - 745 and 78.3; 1962 - 411 and 74.2; 1961 - 713 and 25.2; 1960 - 178 and 74.7. (N.J. Dept. Agr.; Ins.-Dis. Newsltr., Mar. 24.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues a problem on lettuce in Yuma and Maricopa Counties; many winged forms present. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Many winged forms found in lettuce fields in Yuma and Maricopa Counties; however, continues a problem to lettuce growers. (Ariz. Coop. Sur.).

APHIDS - ARIZONA - New infestations of Acyrthosiphon barri continue to be found in lettuce fields in Yuma County. Heaviest infestations on older lettuce. (Ariz. Coop. Sur.). NORTH CAROLINA - Unspecified species light on cabbage in Pender County. (Federonko).

THRIPS - NEW MEXICO - Unspecified species appearing on onion plants in fields throughout most of Mesilla Valley. (N. M. Coop. Rpt.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused medium damage to 200 celery plants in field inspected at Sanford, Seminole County. (DeSin).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Heavy in infested trees in Hempstead (southwest) and Calhoun (south central) Counties. (Ark. Ins. Sur.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Larvae medium on spruce trees in Elk Creek, Glenn County. (Cal. Coop. Rpt.).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Killing over 400 ponderosa pines in 1,000-acre stand in French Valley area of Palomar Mountains. There has been a rapid buildup since fall of 1963. (R. H. Blanford, USFS). D. brevicomis and Ips sp. killing about 80 ponderosa pines in 4-acre stand in The Wilson Camp area, Mendocino National Forest. Area will be salvage logged in near future. (F. Cooley, USFS).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Heavy damage reported from southern Houston County on area of approximately 500 acres. Areas logged during past few months contained heaviest concentration of attacks and control action was initiated. (Texas Forest Pest Comm.; Feb. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - No active infestations located on aerial detection flights in midmonth. Scattered activity observed and reported from ground operations; 7 spots located in Tyler County contained total of 34 brood trees. All infestations located were controlled. (Texas Forest Pest Comm.; Feb. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Activity by I. avulsus, I. grandicollis and I. calligraphus increased little since previous month; no unusual activity reported. (Texas Forest Pest Comm.; Feb. Rpt.).

A BARK BEETLE (Scolytus sp.) - CALIFORNIA - Loss continues in white fir on 2,000-acre stand in Palomar Mountains, San Diego County. (Cal. Coop. Rpt.).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Heavy on Picea sp. in Belmont, San Mateo County. (Cal. Coop. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - CALIFORNIA - Infesting over 100 sugar pines in 5-10 acre stand at Institute of Forest Genetics, El Dorado County. (L. Straw, USFS).

A NEEDLE MINER - NEVADA - Population of undetermined species light on Pinus monophylla in southern Washoe County. (Parker).

A PINE SAWFLY (Neodiprion taedae linearis) - ARKANSAS - First hatch of season observed March 13 in southern Calhoun County (south central). Indications are for possible heavy infestation this season. (Ark. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Early instars present in numerous cherry and few peach trees in Lee, Tuscaloosa, Bibb and Autauga Counties. First reports of season. (Grandberry, Barwood, Shuler, Cain, et al.). ARKANSAS - Infestations continue to develop; second and possibly few third-stage larvae common in southern area. Very little food available for larvae. (Ark. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Damage by this species and Malacosoma sp., probably texanum, to live oak and post oak continues over wide area in central part of State. Larvae appearing as far north as Ft. Worth. (Texas Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - Inspection of 86 trailer parks in MASSACHUSETTS revealed 23 sites infested with average of 7 egg clusters per site. One egg cluster found during inspection of 16 motels. Shipment of lumber originating in Southwick, Hampden County, found infested with 1 new and 10 old egg clusters. In CONNECTICUT, 44 cords of fuel wood and 10 plants inspected; 15 egg clusters removed from 3 plants. Inspection of potentially hazardous sites in NEW YORK within generally infested area indicates increasing number of trailer courts, truck stops and public recreation areas becoming infested. Total of 85 egg masses removed from 3 shipments of veneer logs originating in Ulster and Montgomery Counties. Inspections in NEW JERSEY and VIRGINIA negative. (PPC, East. Reg., Feb. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Total of 1,805 webs cut and destroyed in the towns of Allenstown, Hooksett and Loudon, Merrimack County, and in towns of Francestown, Mount Vernon and Weare, Hillsboro County, NEW HAMPSHIRE. Inspections in MAINE and VERMONT negative. Infestation found in Dennis, Barnstable County, MASSACHUSETTS, in same general area as in 1963. Surveys in towns of Northboro and Westboro, Worcester County; Ipswich, Essex County; and in Suffolk County negative. Intensity of Dennis infestation reduced about 50 percent. (PPC, East. Reg., Feb. Rpt.).

CURRANT BORER (Ramosia tipuliformis) - CALIFORNIA - Larvae heavy in currant bushes in planting in Belmont, San Mateo County. (Cal. Coop. Rpt.).

A PLUME MOTH (Platyptilia pica) - CALIFORNIA - Light in geranium propagating stock in Vista, San Diego County. Fumigation has been successful in eliminating infestations. (Cal. Coop. Rpt.).

A BILLBUG (Sphenophorus phoeniciensis) - ARIZONA - Adults numerous in home gardens and yards in Maricopa and Pima Counties. (Ariz. Coop. Sur.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - COLORADO - Populations heavy and very active at nursery in Denver. (Colo. Ins. Det. Comm.).

SPIREA APHID (Aphis spiraecola) - ALABAMA - Extremely heavy (50-100 per 3 inches of new growth) on Reaves, Vanhoutte and Thurnberg varieties of spirea in central part of State. Winged forms numerous and moving to less populated plants. Several species of lady beetles feeding on aphids. (Barwood, Helms, et al.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Infesting 75 of 100 aralia plants at St. Petersburg, Pinellas County. (Bingaman, Mar. 19).

APHIDS - CALIFORNIA - Lachnus salignus heavy on pussy willow trees in Belmont, San Mateo County. Cinara tujafilina medium on Thuja sp. growing stock in Vista, San Diego County. Vesiculaphis caricis infesting azalea in Oakdale, Stanislaus County, is a new county record. (Cal. Coop. Rpt.). NEW MEXICO - Unspecified species ranged light to moderate on rose bushes in Dona Ana County. (N.M. Coop. Rpt.). OKLAHOMA - Cinara tujafilina heavy on arborvitae in Hobart (west central) and Stillwater (north central) areas. (Okla. Coop. Sur.). FLORIDA - Cerataphis variabilis infesting 25 of 100 coconut trees at Miami, Dade County. (McFarlin, Mar. 16).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy on albizzia in Belmont, San Mateo County. (Cal. Coop. Rpt.).

THRIPS - CALIFORNIA - Thrips madronii medium on ceanothus in Belmont, San Mateo County. Liothrips ilex medium on Photinia arbutifolia in Crockett, Contra Costa County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus on 2 properties in Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infested little leaf euonymus in Wayne County. (Jones).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on leaves and stems of ivy nursery stock in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

A MINING SCALE (Pseudaonidia clavigera) - FLORIDA - Severe on Camellia sasanqua in nursery at Tampa, Hillsborough County, March 20. Plants fumigated with methyl bromide March 3 and still under quarantine. (Hale).

AN ARMORED SCALE (Gymnaspis aechmeae) - FLORIDA - Moderate on 50 Vriesea sp. (a bromeliad) at Ft. Lauderdale, Broward County. (Dowling, McLean; Mar. 10).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - ALABAMA - Pupae numerous in leaves of Ilex spp. damaged in fall of 1963 in Lee and Tuscaloosa Counties. (Grandberry, Cain, Shuler, et al.).

SOUTHERN RED MITE (Oligonychus ilicis) - FLORIDA - Moderate on 1,000 Viburnum odoratissimum at a nursery in Mcclenny, Baker County. (Collins, Mar. 4).

SPIDER MITES - FLORIDA - Tetranychus marianae severe on nightshade at Ft. Lauderdale, Broward County. (Dowling, McLean; Mar. 10). ALABAMA - Isolated, heavy infestations of adults, immatures and eggs of Tetranychus spp. noted on azaleas in Houston and Lee Counties. (McQueen).

AN ACARID MITE (Tyrophagus longior) - CALIFORNIA - Nymphs and adults light on azalea in Danville, Contra Costa County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Calacarus adornatus) - FLORIDA - Infesting 20 percent of 2,000 plants of Nephytis sp. at Hobe Sound, Martin County. (Campbell, Mar. 11).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy in building in Paso Robles, San Luis Obispo County, and several residences in Sacramento area, Sacramento County. (Cal. Coop. Rpt.). NEVADA - Complaints by homeowners continue in Reno-Sparks area, Washoe County. (Coop. Rpt.). ARIZONA - Infesting lawns and homes in many areas of Maricopa and Pinal Counties. (Ariz. Coop. Sur.). ALABAMA - Probably this species became quite a nuisance in home in Marshall County. (Ledbetter). NORTH CAROLINA - Collected in Warren County. (Reams, Mount). DELAWARE - Continues troublesome in many homes in New Castle County. Reports considerably more numerous this season than in previous years. (MacCreary).

A CLOVER MITE (Petrobia apicalis) - FLORIDA - Found by the millions on its host, white clover, and congregating on walls and inside of homes. Causing complaints at Jacksonville, Duval County. (Josey, Barrett; Mar. 19).

BOXELDER BUG (Leptocoris trivittatus) - NEW JERSEY - Continues to cause concern to homeowners in central and northern counties. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Noted in home in Northampton County. (Taylor, Robertson).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Continues to cause concern in some homes in Stillwater area, Payne County. (Okla. Coop. Sur.). DELAWARE - Heavy in home in New Castle County. (MacCreary).

CLUSTER FLY (Pollenia rudis) - COLORADO - Adults numerous in warm south exposures, on lawns and houses at Fort Collins, Larimer County. (Thatcher).

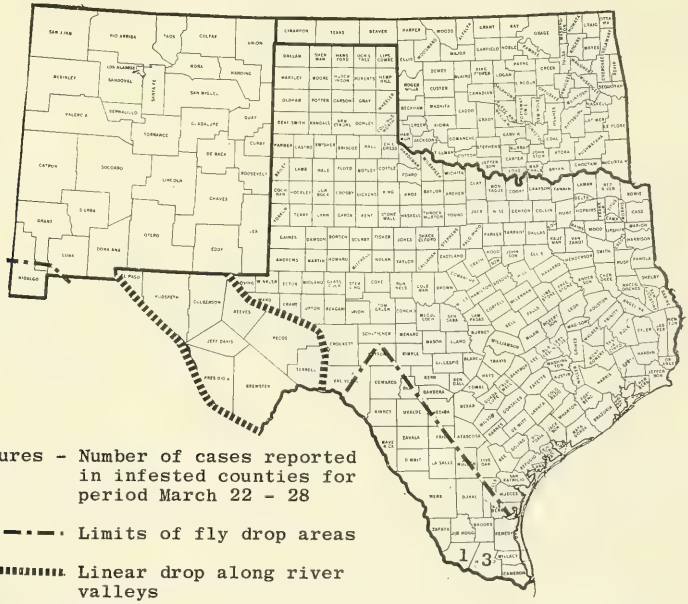
BEAN WEEVIL (Acanthoscelides obtectus) - NEVADA - Medium in home pantry at Las Vegas, Clark County. (Case).

SUBTERRANEAN TERMITES - NEW JERSEY - Swarms reported in several counties. (Ins.-Dis. Newsltr., Mar. 24). DELAWARE - Several swarms of Reticulitermes flavipes noted in areas of New Castle County during past 2 weeks. (Burbutis). NORTH CAROLINA - R. flavipes swarmed from edge of concrete slab driveway in Raleigh, Wake County, morning of March 27. (Mount). OKLAHOMA - First swarming of Reticulitermes tibialis noted in Payne County. (Okla. Coop. Sur.). NEW MEXICO - Unspecified species causing considerable damage to number of homes in Roswell, Chaves County. (N.M. Coop. Rpt.). UTAH - Unspecified species damaged books in library at Logan, Cache County. (Knowlton). CALIFORNIA - Reticulitermes hesperus heavy in a dwelling in Oroville, Butte County. R. tibialis heavy in picture frame and window casing in Eureka, Humboldt County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 21 - 28, a total of 4 laboratory confirmed cases of screw-worm was disclosed in TEXAS; 3 from Hidalgo County and 1 from Starr County. This brings the total to 7 confirmed cases from Texas this year. During the same 3 months of 1963, the total was 182 confirmed cases. A total 204 nonscrew-worm cases was reported from the Southwest during this same period, as opposed to 224 for the corresponding period in 1963. A total of 100,657,050 sterile screw-worm flies was released during the period March 21 - 28. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 22 - 28

Limits of fly drop areas

Linear drop along river valleys

MOSQUITOES - NORTH CAROLINA - Aedes vexans present in very light numbers in Carteret County during week ending March 22. (Ashton). DELAWARE - Aedes canadensis, A. excrucians, A. grossbecki and A. thibaulti found breeding in areas of western New Castle County on March 24. (Lake, Stahecki). FLORIDA - Aedes canadensis, A. infirmatus and A. sticticus taken biting humans at Gainesville, Alachua County. Larval and pupal stages of Culex salinarius in ditchwater with algal scum at Gainesville, Alachua County. (Mead, Habeck).

NORTHERN CATTLE GRUB (Hypoderma bovis) - DELAWARE - Infestations of nearly grown grubs ranged 1-20 per head on feedlot beeves in Sussex County; most animals imported from Southeastern States. (Catts).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adults active in Payne (north central) and Pushmataha, McCurtain and Latimer Counties (southeast). (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 2 per head in Payne County (north central) before onset of cold weather. Occasional adult noted in Pushmataha and McCurtain Counties (southeast). (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - COLORADO - Adults overwintering in numbers of barns at Central Great Plains Field Station, Akron, Washington County. Det. by L. E. Jenkins. (Hays). First ARS record for county.

HOUSE FLY (Musca domestica) - ARKANSAS - Small numbers active on warm days in northwest area. (Ark. Ins. Sur.).

BLOW FLIES - COLORADO - Adults overwintering in numbers in barns at Central Great Plains Field Station, Akron, Washington County. (Hays, Jenkins).

CATTLE LICE - UTAH - Causing some cattle to rub in Cache County. (Knowlton). OKLAHOMA - Counts remain static in north central areas, declining somewhat in southeast areas. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Ranged 4-5 per head on cattle in southeast counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Adalia bipunctata ranged 10-20 with a few larvae per spirea shrub; feeding on aphids in Lee County. Lesser number of Hippodamia convergens and Chilocorus stigma observed. (Barwood, Helms, et al.). ARKANSAS - Various species becoming active on warmer days. (Ark. Ins. Sur.). ARIZONA - Larvae of several species found in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Heavy populations found on sand verbena in Yuma County. (Ariz. Coop. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Becoming more numerous on warm days. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Adult collected on ground at Gainesville, Alachua County; coll. and det. by L. A. Hetrick. (Fla. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Larval inspections in St. Charles Parish, LOUISIANA, show small extension to known infested area. Treatment completed in Booneville, Prentiss County, MISSISSIPPI. (PPC, South. Reg., Feb. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Approximately 18,000 acres inspected in San Antonio, TEXAS; very few mounds found. Surveys in Walker and San Jacinto Counties negative. Found for the first time in Nacogdoches County. At Houston, Harris County, 8 small city parks treated. Check of treated area in Colorado County showed all mounds affected by bait. Extensions of infested area found in Ashley and Union Counties, ARKANSAS. Surveys in 12 LOUISIANA parishes revealed large areas of infestation in some parishes. Very good results obtained with broadcast treatment on dairy pastures in Smith County, MISSISSIPPI; indivdual mound treatment not so effective. Found for the first time in Humphreys County. Last known infestation in Fayette County, ALABAMA, treated. Found for the first time in Coweta County, GEORGIA. (PPC, South. Reg., Feb. Rpt.).

A PYRAUSTID MOTH (Macrobotys thestealis) - DELAWARE - Adults collected July 1, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A PYRALID MOTH (Herculia intermedialis) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A CHRYSAUGID MOTH (Arta statalis) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

A MOMPHID MOTH (Mompha eloisella) - DELAWARE - Adults collected July 1, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by R. W. Hodges. (Burbutis).

AN OLETHREUTID MOTH (Eucosma dorisignatana) - DELAWARE - Adults collected September 19, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by D. R. Davis. (Burbutis).

A TINEID MOTH (Xylesthia pruniramiella) - DELAWARE - Adults collected July 12, 1963, at light by D. F. Bray at Newark, New Castle County; this is a new State record. Det. by D. R. Davis. (Burbutis).

CORRECTIONS

CEIR 14(12): 214 - A PSYCHID MITE (Apterona crenulella) should read a PSYCHID MOTH (Apterona crenulella).

ADDITIONAL NOTES

GEORGIA - CABBAGE APHID (Brevicoryne brassicae) moderate to heavy on cabbage in Colquitt, Brooks and Thomas Counties. (Johnson). VEGETABLE WEEVIL (Listroderes costirostris obliquus) larvae completely defoliated turnips in home garden in Spalding County (Dupree, Mar. 14). This species ranged light to moderate on tobacco in the plant bed in several southern counties. (Johnson, Mar. 25).

MICHIGAN - Numerous reports from homeowners indicate adults of SPRING CANKERWORM (Paleacrita vernata) continue active in southern counties. (Hoffman).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (gray cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (white-headed armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commutalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege similalis (garden webworm)	Ostrinia nubilalis (European corn borer)	Paridiomna saucia (variegated cutworm)	Pseudaletia orthogalli (false-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
FLORIDA																								
Gainesville 3/26			BL					8												1				
GEORGIA																								
Tifton 3/19-25			BL						0	0								0	0					
MISSISSIPPI																								
Stoneville 3/21-27	29-75	0.42"	MV													4				1				
Stoneville 3/21-27	29-75	0.42"	BL	1												3	1			2				
SOUTH CAROLINA																								
Clemson 3/21-27																	5							
Charleston 3/16-22	36-72	0.13"	BL	0			0		1	0	0	0				3	0	0	0	10			0	
TEXAS																								
Waco 3/21-27			BL				0		1		0	0				25	0			27	0		0	
Brownsville 3/12-25			6 BL	268			106		1319	5	496	357		8368		435	39	51	17	716			148	

* BL - blacklight; I - incandescent; MV = mercury vapor ; O = other

** alf. - alfalfa; beet - garden beet and/or sugar beet; cole = cole crops (crucifers); cott. cotton; FC = field corn; grain - small grains; leg. = legumes (unspecified); lett. = lettuce; pean. - peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. - solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. - tobacco; tom. = tomato.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 698th meeting of the Hawaiian Entomological Society held February 10, 1964.

Two mature females of an ARMORED SCALE (Aspidiotus herculeanus (Ckll. and Hadden)) were collected by Dr. C. W. Rutschky from a twig bearing a mature green macadamia nut. They were found December 13, 1963, in a commercially producing orchard at Honokaa, Hawaii, at an elevation of 900 feet. Determined by Dr. J. W. Beardsley, Jr., as Clavaspis herculeana. This report constitutes a first locality record of this armored scale in the Islands. Presence of the species in the State was first reported by E. Shiroma at the January 13, 1963, meeting of the Society. It had been intercepted May 18, 1963, by R. Wakamiya on the bark of an outgoing shipment of plumeria, the source locality of which was unknown. (Hawaiian Ent. Soc.).

Several specimens of BLACK THREAD SCALE (Ischnaspis longirostris (Signoret)) were intercepted on coffee berries on 2 occasions by Inspectors A. Paterson and R. Townsend on December 29, 1963, and January 14, 1964, respectively. Concerning the January 14 interception, the passenger revealed that berries were picked on the island of Maui. This constitutes a new host record for this species in Hawaii and also a new island record for Maui, since it has previously been reported as occurring only on the islands of Oahu, Molokai and Niihau. Other previously reported hosts included coconut, Ficus bengalensis, mango, Moraea bicolor, palm, Pandanus sp., star jasmine and Chrysolidocarpus lutescens. (E. Shiroma).

An unusually heavy infestation of BANDED GREENHOUSE THRIPS (Hercinothrips femora (Reuter)) was noticed on spider-lily plants (Hymenocallis littoralis) at the Honolulu International Airport. The immediate signs are bronzing and reddening of the younger leaves and later dying. The infestation is so heavy that several plants have already been killed. (E. Shiroma).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum (Marchal)) - Inspector N. Kitazaki reported during the latter part of January 1964 that young leaves of a banyan tree (Ficus retusa) at the Honolulu International Airport showed signs of insect injury, with terminal leaves turning color. Examination of a few leaves showed them to be heavily infested with this thrips, which was identified by K. Sakimura of the Pineapple Research Institute as Gynaikothrips sp., most likely ficorum (Marchal). Other trees, apparently infested with this same thrips in the Kalihi area, have also been noticed. This constitutes a new insect record for the State of Hawaii. According to Mr. Sakimura, the distribution of this thrips is practically worldwide and is host specific to Ficus retusa. Infested F. retusa specimens were exhibited. (E. Shiroma).

MEADOW SPITTLEBUG (Philaenus spumarius (L.)) was reported heavy on approximately one-half acre of Hamakua pamakani plants (Eupatorium riparium) at Honomalino, South Kona, Hawaii, in September 1963 by A. Kawasaki and S. Kawahara of the State Department of Agriculture. Counts ranged 10-20 per plant and the spittle produced by the nymphs was quite conspicuous. Nymphs appeared to be feeding principally on the young shoots, causing a noticeable wilting. A moderate infestation was observed on Hamakua pamakani just beyond Kulani Prison, Hawaii, in the vicinity of the plum orchard in November 1963. (N. L. H. Krauss).

A twig-boring BARK BEETLE (Xylosandrus compactus (Eichhoff) (=Xyleborus morstatti Hagedorn))* was found in a live branch of Isabella grape on Puna Street, Kamehameha Heights, Honolulu, in December 1963. A number of bostrichids (Xylopsocus castanoptera (Fairmaire)) were also found in the branches. (N. L. H. Krauss).

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* Murayama, J. J., and Kalshoven, L. G. E. 1962. Ent. Ber. (Amsterdam) 22(12):247-250.

SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula (F.)) adults and nymphs were found in great numbers on buds and flowers of nightblooming cereus (Hylocereus undatus) in Manoa Valley, Honolulu, early in the summer of 1963 by Miss Beatric Krauss. Many of the flowers were ruined. (N. L. H. Krauss).

An ANTHOMYZID FLY (Mumetopia nigrimana (Coq.)) - A large series of this fly was collected sweeping grass beneath datura bushes at Kamuela, Hawaii, during June 1963. One specimen was collected sweeping vegetation at Pupukea, Oahu, in August 1963 (D. E. Hardy), and one specimen collected at a light in Honolulu, Oahu, in February 1964 (W. C. Mitchell). This is a new record for Hawaii. The species is common in the Neotropical region. (D. E. Hardy).

A MOSQUITO (Aedes vexans nocturnus (Theobald)) is present on the island of Molokai. Numerous larvae and pupae were taken by dipping in a grassy pool in a roadside park near the Kapuiwa coconut grove, not far from Kaunakakai, on December 16, 1963. The following day, 11 pupae were taken from old tires near Kaunakakai harbor. Although this is not a normal habitat for this mosquito, the finding indicates that it is possible for the species to be transported from one location to another in dry egg state in old tires. Four pupae of A. vexans nocturnus were also taken from a concrete lined swamp pit about one mile east of Kaunakakai, where great numbers of Aedes aegypti and Aedes albopictus were also present. Aedes vexans nocturnus is now present on the three islands of Oahu, Kauai and Molokai, and appears to be well established. (C. R. Joyce).

A SARCOPHAGID FLY (Sarcophagula occidua (F.)) was taken in large numbers in fly traps at Kaunakakai on the island of Molokai, at Kahalui on the island of Maui, and at Nawiliwili on the island of Kauai, indicating that the species is well established on these islands. S. occidua was first taken on Oahu in September 1961. It apparently has not been previously recorded from the other islands mentioned. (C. R. Joyce).

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on January 31, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

SAFFLOWER FRUIT FLY (Acanthiophilus eluta (Meigen)), or probably that species, mining in thistle stem contaminating general cargo at Wilmington, North Carolina.

A GIANT AFRICAN SNAIL (Achatina fulica Bowd.) twice at Honolulu Hawaii, in air cargo.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 103 times: In Texas at Dallas (2), Brownsville (7), Del Rio (4), Eagle Pass (12), El Paso (8), Galveston (1), Houston (9), Laredo (23), Roma (6); in California at Calexico (7) and San Ysidro (7); in Arizona at Nogales (6) and San Luis (2); in Florida at Miami (3) and Tampa (3); and once each at Baltimore, Maryland; Philadelphia, Pennsylvania; and New Orleans, Louisiana.

BRUCHIDS - Bruchus ervi Froel. in cargo shipment of lentils at Boston, Massachusetts, and in baggage at New York, New York; B. signaticornis Gyll. in air baggage of lentils at New York; and B. tristiculus Fahr. in ship baggage of sweet pea seed at New York.

LEEK MOTH (Acrolepia assectella (Zell.)) twice in stores; at Charleston, South Carolina, and Philadelphia, Pennsylvania.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 53 times in baggage, mail and stores: At Baltimore (1), Maryland; Boston (6), Massachusetts; Chicago (3), Illinois; Dover (2), Delaware; Honolulu (5), Hawaii; New York (33), New York; San Antonio (1), Texas; San Juan (1), Puerto Rico; and Tampa (1), Florida.

ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) once in stores at San Diego, California, and once in baggage at Seattle, Washington.

A WIREWORM (Conoderus rufangulus (Gyll.)) once in baggage at Wilmington, North Carolina

FALSE CODLING MOTH (Cryptophlebia leucotreta Meyr.) in stores of orange fruit at New York, New York.

MELON FLY (Dacus cucurbitae Coq.) in stores at Seattle, Washington.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) 25 times in baggage, mail and stores: In Hawaii (23) in baggage, mail and stores destined for the mainland; at Portland, Oregon, in baggage and Seattle, Washington, in quarters once each.

OLIVE FRUIT FLY (Dacus oleae (Gmel.)) 24 times in baggage: At New York (18), New York; Boston (4), Massachusetts; and Chicago (2), Illinois.

A GRASSHOPPER (Patanga japonica (Bol.)) (widespread species in orient) at Seattle Washington. Specimen kept as pet in ship crew quarters.

A CARROT BORER (Phalonia zephyrana (Treit.)) 3 times in stores at Philadelphia, Pennsylvania.

A PIERID BUTTERFLY (Pieris brassicae (L.)) on cargo at Baltimore, Maryland.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) in cherry in baggage at Boston, Massachusetts.

A STENOMID MOTH (Stenoma catenifer (Walsm.)) 4 times in baggage: At Brownsville (3), Texas; and New Orleans (1), Louisiana.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 5 times: At Charleston (2), South Carolina; and New York (3), New York.

KHAPRA BEETLE (Trogoderma granarium Everts) 25 times: At Charleston (2), South Carolina; Hawaii (2); Houston (1), Texas; Jacksonville (1), Florida; New York (1), New York; Philadelphia (4), Pennsylvania; Portland (4), Oregon; San Francisco (4), California; Savannah (1), Georgia; and Seattle (5), Washington.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

(continued from page 270)

INSECTS AFFECTING MAN AND ANIMALS

Highlights:

MOSQUITOES were, as usual, a major source of annoyance to man and animals in certain sections of the country, whereas drought conditions and other factors held populations down in other areas. Several massive flights of *Aedes sollicitans* occurred in coastal regions of Louisiana, killing many cattle in two parishes. Mosquitoes troubled residents throughout Texas, but the general infestation was not as severe as in 1962. Annoying numbers were evident in New Mexico and Arizona, and they were the heaviest of the past five years in Nevada, especially in central and northern counties. Populations were generally light in California, but mosquitoes caused considerable concern in Utah, Wyoming and Montana where control difficulties were reported. Mosquitoes were more annoying than usual in Alaska, above normal in North Dakota and bothersome in South Dakota and Nebraska as well as in eastern Colorado, Kansas and Oklahoma. Annoying numbers were also reported from Iowa, Minnesota and Wisconsin in the Midwest; Maine and Vermont in the Northeast; Delaware and Maryland in the Mid-Atlantic States; and locally in North Carolina, Florida and Alabama. Several species of BLACK FLIES were a nusiance during 1963. Annoyance was reported from Nevada, Idaho, Utah, Minnesota, Michigan, Vermont, Maine, Rhode Island and Maryland. FACE FLY did not appear to be as abundant as in 1962 in most areas of its range, but annoying numbers were reported in several States. Several new counties were reported infested in Missouri, North Carolina and South Carolina. HOUSE FLY adults were a serious problem in Arizona and higher than normal in Utah. Populations were annoying to homeowners during the late summer and early fall in Wyoming, Colorado and Nebraska, and the pest was bothersome in certain Eastern areas. HORN FLY and STABLE FLY both continued as major pests of cattle during 1963, with either one or both of the pests being of primary concern. Horn fly appeared to be more of a general problem, however.

SCREW-WORM incidence in the Southwest has been reduced almost 99 percent over years prior to the eradication program. No screw-worm cases were reported east of Texas and Oklahoma in 1963; the first time in almost 30 years that this has occurred. The releasing of sterilized males (up to 140 million a week) over areas of southern and central Texas, southern New Mexico and northern portions of the Republic of Mexico has had the effect of reducing native populations to very low levels. It is hoped that eradication will be the end result of the program.

HORSE FLIES and DEER FLIES were of importance in a number of States, but they were not generally pestiferous. States reporting annoying numbers were Nevada, Wyoming, Oklahoma, Iowa, Wisconsin, Michigan, Rhode Island and Maryland, although other States had troublesome numbers at times. Populations of CATTLE GRUBS appeared to be about normal for the year, with the usual control practices being applied.

Homeowner complaints concerning the BROWN DOG TICK were numerous in a number of States during 1963, and LONE STAR TICK became heavy on livestock in ARKANSAS and Oklahoma. The TROPICAL HORSE TICK control program is believed to have reduced the incidence of equine piroplasmosis in Florida. TROPICAL FOWL MITE was found for the first time in Delaware. The eradication program for SHEEP SCAB MITE has resulted in elimination of this pest from many counties in several States. CATTLE LICE were the number one pest of cattle in Nevada in 1963, and a number of other States reported economic numbers. FLEAS were of concern to homeowners in several States.

MOSQUITOES were, in general, apparently below normal during 1963 in FLORIDA, although there were some "hot spots" in mosquito production around the State during the summer. Populations of Culex nigripalpus, an encephalitis vector, were especially low in the Tampa Bay area in comparison with those found in 1962. There were no confirmed cases of St. Louis encephalitis in the State. Chick-baited traps have reflected a fairly large population of C. nigripalpus in some other areas of Florida, but also without known cases of encephalitis. Various species of mosquitoes continued a major problem to man in ALABAMA. Extremely heavy populations were reported from the gulf coast area, the Tennessee River Valley Authority lake area and parts of the Warrior River area. In Madison County, the floodwater mosquitoes were the most abundant due to heavy consistent rainfall early in the year; Aedes vexans comprised 30 percent of those mosquitoes present and Psorophora confinnis 25 percent. In the coastal parishes of LOUISIANA, several massive flights of Aedes sollicitans occurred. The first plague affected all of the coastal region, killing many cattle in Plaquemines and Cameron Parishes; others were severe but more localized. The last one, invading the central area of New Orleans, broke precedents by lasting through the first half of December. In TEXAS, several species of mosquitoes troubled residents throughout the State. The general infestation was not as severe as in 1962. In Orange and Jefferson Counties, mosquitoes were found reproducing for the first time in the rice fields rather than ditches and canals.

Mosquitoes were very bothersome statewide in NEW MEXICO after summer rains. In Dona Ana County, the main species along streams was Aedes sollicitans, while in the residential areas, it was Culex tarsalis. During August and September, Aedes vexans was very abundant in Bernalillo, McKinley and Valencia Counties, New Mexico. Mosquitoes were also a real nuisance in August and September in the southern half of ARIZONA. Mosquitoes were locally a problem in a few CALIFORNIA locations for short periods, but in general, 1963 was one of the lightest years in several years. Control of mosquitoes in the rice-growing districts was exceptional by use of the mosquito fish, Gambusia affinis.

Mosquito populations in NEVADA were the heaviest in the last five years, especially in the central and northern counties where abundant spring moisture and adequate water for irrigation contributed to the increase. In UTAH, the past year was very serious in that it was difficult to control mosquitoes adequately, even in established control districts. Early flooding of gun clubs during the stormy summer weather added to the mosquito buildups. In Weber County, 35,000 acres were treated by aircraft and 12,000 acres by ground equipment where three peaks of Aedes dorsalis occurred during the season (May, late June and September). Control budgets were often exhausted before the end of the control season in Utah. In Salt Lake County, the mosquito outbreak in 1963 was the worst since the County Mosquito Abatement District was formed. A. dorsalis gave the most trouble, but Culiseta inornata was also extremely numerous. Culex tarsalis appeared to have been at record low levels.

Mosquitoes were the cause of great annoyance to man and animals throughout WYOMING. Controls were applied in many cities and towns throughout the State, with only a moderate degree of success in most areas. In MONTANA, mosquitoes were a problem as usual along the High Line. Abatement work was excellent in certain localities, but the overall picutre was dark. The species giving the most trouble were Aedes vexans, Aedes dorsalis, Aedes nigromaculis, Culex tarsalis, Culiseta inornata, Aedes campestris, Aedes cinereus, Aedes flavescens, Aedes idahoensis, Aedes increpitus, Aedes spencerii, Aedes trivittatus, Anopheles earlei and Culex territans. Some abatement work was done in Great Falls, Missoula, Kalispell and Laurel. Many other localities of Montana suffered from mosquitoes during the spring and early summer, but very little actual coordinated abatement work was attempted.

Several species of mosquitoes were more annoying in ALASKA to the general population than in a number of years due to continued biting activity throughout the whole summer. Normally, the Culiseta start off in the early spring followed by

Aedes, and annoyance ceases in much of the State by early June. This was not the case in 1963 as the interior was not the only part of the State to be bothered by mosquitoes.

Above normal populations of mosquitoes were observed in many areas of NORTH DAKOTA in 1963, especially in the northwest. In the eastern part of the State, the dominant species included Aedes vexans, Aedes dorsalis and Culex tarsalis. The dominant species in the west included Aedes vexans, Aedes nigromaculis and Aedes dorsalis. In SOUTH DAKOTA, humans and animals were once again bothered by various species of mosquitoes throughout the summer and fall. Populations in NEBRASKA built up during the early spring and then dropped off in early summer due to dry conditions. They then built up again in the fall. During the season, 12 light traps were operated in 11 Nebraska counties. Twenty-two species were identified in the 24,352 specimens collected. Approximately 8,000 were males and 16,000 were females. Aedes vexans was the dominant species at all stations and made up to 60 percent of the collections. Culex tarsalis, comprising 10 percent of the total collections, was the species of second importance at most stations but in greatly reduced numbers compared to former years. Comparatively few Culiseta inornata were collected in the early part of the season in Nebraska, but large numbers were taken in the late August and September catches. At Bassett, a large number of Mansonia perturbans were taken.

Mosquitoes were numerous and troublesome in the eastern part of COLORADO in September following rain. The incidence of mosquitoes early in the summer was light. In KANSAS, mosquitoes were of considerable nuisance value in spite of the relatively dry summer. Aedes vexans was the most abundant, with Aedes nigromaculis, Culex salinarius, C. tarsalis, Psorophora confinnis and P. discolor being fairly abundant. Several species of mosquitoes caused considerable annoyances around OKLAHOMA, especially after rainy periods throughout the warm periods of the year.

Surveys were made in MISSOURI to determine the extent of mosquito breeding in various areas of the State. In June, a survey of the Wappapello Lake area (southeast) was made to determine the extent of Anopheles quadrimaculatus breeding and the area was resurveyed in September. Thirteen larval stations and 14 adult stations were checked. Most of the adult and larval stations inspected showed a significant increase in populations over those found in 1962. Heavy populations of Culex pipiens (30 larvae per dip) were found in water standing in boats. In July, a survey was conducted in the Clearwater Lake area (south central) of Missouri. Eight adult stations and 5 larval stations were surveyed. Counts at the adult stations ranged from zero to 18 A. quadrimaculatus and zero to 20 culicine larvae per dip. On August 5 and 6, a survey was conducted on Lake Norfort (southwest). Populations were very light in the 8 adult and 6 larval stations checked. In most areas, shorelines were clean and wave action created unfavorable breeding sites. Large numbers of Culex spp. were noted in ponds in the Tecumseh area. On August 6 and 7, a survey was conducted on the Bull Shoals Lake area (southwest). Six adult stations and 6 larval stations were checked. Lake shores were clean and wave action prevented breeding in most areas. In the Kissee Mills public use area, large numbers of culicine mosquitoes were noted. In August and September, 26 sites were surveyed in the Lake of the Ozarks area (south central) of Missouri. At the time of this survey, the shoreline was reasonably clean and free of debris associated with mosquito breeding. Property and resort owners reported more mosquitoes than in the past two years when the lake was at full reservoir, but the populations declined when the lake level dropped. In practically all instances when residents complained of vicious biting by mosquitoes, high numbers of larvae were found in old tires and other containers around their homes.

Mosquitoes became abundant and were annoying in several areas of IOWA during the summer. Controls were necessary in some instances. In MINNESOTA, the first hatch of eggs was reported March 24. First pupation of spring Aedes was found on April 25. A large hatch of Aedes occurred following heavy rain during May 10-12. These emerged the first week of June and caused consierable nuisance outside

the Metropolitan Mosquito Control District. Control within the district was good and little nuisance resulted. By mid-June, Aedes vexans was predominant in all collections, although numerous Culiseta inornata and Culex restuans were being taken. Additional heavy rains in mid-June in Minnesota resulted in an extensive hatch. The rising St. Croix and Mississippi Rivers inundated low-lying areas and formed many backwater pools. These pools produced almost continuous hatch as the pools developed. Mansonia perturbans, a very vicious biter, appeared in light trap collections about June 15 and continued troublesome well into August, especially in areas near cattail swamps. Trap collections of adult mosquitoes declined from a high of 58,000 per 16 traps for the period June 23-29 to a low of 3,500 for the period of July 13-20. Anopheles walkeri was taken in rather large numbers in one trap during the week ending July 13. Flooding along the Minnesota River in late July caused a peak adult population by August 7 throughout much of the district. These numbers declined rather rapidly during August. By late summer, all types of collections were very predominantly Aedes vexans in Minnesota -- in many cases 90-95 percent of collections were of this species.

Larvae of mosquitoes, primarily Aedes vexans, appeared in large numbers in the Dane County, WISCONSIN, area during the second week of June. Substantial numbers of adults were evident in succeeding weeks although activity was sporadic and dependent upon evening temperatures and pattern of thunderstorms. Permanent water and woodland species prevailed throughout the summer in Wisconsin, although populations were lower than in previous years and were considerably lower in the fall. Larvae of Culex pipiens became abundant in mid-August, but emerging adults were not overly troublesome. In MICHIGAN, adults of Culex, Aedes and Anopheles were normally abundant in May and early June, but numbers were abnormally low for the remainder of the season. The following mosquitoes were trapped in Lucas County, OHIO, northwest area, during the period June 4 through September 13. Culex pipiens - 710, C. restuans - 29, C. salinarius - 35, C. tarsalis - 2, C. territans - 14, C. erraticus - 1, Aedes vexans - 195, A. excrucians - 2, A. stimulans - 2, A. spencerii - 1, Culiseta inornata - 2, Culiseta morsitans - 1, Uranotaenia sapphirina - 15, Anopheles punctipennis - 10 and Anopheles quadrimaculatus - 8. A total of 3,169 mosquitoes consisting of 2,131 males and 1,038 females was trapped over the year. Lower total populations and fewer personal complaints were encountered during 1963 in Ohio than in previous years.

Extremely heavy populations of mosquitoes (predominantly snowpool Aedes spp.) were prevalent throughout MAINE in late spring and early summer. Abundant snow fall resulted in above normal amounts of standing water allowing complete hatch and development of mosquitoes. The annoyance level remained very high into the late summer. Mosquitoes, Culex spp. and Aedes spp., were annoying to livestock on pasture and to humans in VERMONT most of the summer. In the fall, adults were seen in homes seeking winter protection. Aedes spp. were heavy locally in woodland areas of RHODE ISLAND in the spring and some complaints of crepuscular biting were reported during the warm period of June, but in general, mosquitoes were less conspicuous than usual throughout the season. There was also some annoyance reported in CONNECTICUT during midsummer. In DELAWARE, comparison of mosquito light trap collections from similar localities in the State during 1962 and 1963 indicated that Aedes sollicitans and Aedes cantator were somewhat more troublesome in 1963. Culex spp. and Aedes vexans counts were less than two-thirds of the amount collected in 1962. The troublesome late fall brood of A. sollicitans experienced in New Castle County, Delaware, in 1962 did not repeat in 1963. Numbers of Aedes sollicitans in tidewater areas of MARYLAND were generally below normal except for distinct outbreaks in June and again in late September and October. Outbreak numbers of Aedes spp. and Culex spp. also occurred in several communities in Prince Georges County, Maryland. In VIRGINIA, only occasional reports were received concerning mosquitoes. Aedes sollicitans populations were unusually low throughout the summer along the coastal areas of NORTH CAROLINA and it did not increase greatly until around September 16. Culex pipiens quinquefasciatus became quite troublesome to residents in the mountain counties of North Carolina during the late summer.

Adults of a PHANTOM MIDGE (Chaoborus punctipennis) were very annoying in the immediate area of waste lagoons at Easton in Talbot County, MARYLAND, at certain periods during the summer. Populations of one of the BITING MIDGES (Culicoides obsoletus) were very abundant and annoying in eastern Kent County, DELAWARE, during early June. In WISCONSIN, emergence of a LAKE MIDGE (Tendipes plumosus) began on the night of May 8, and reports indicated the highest incidence in many years in the vicinity of Lake Winnebago. The second emergence of this midge occurred during the third week of July and was also high.

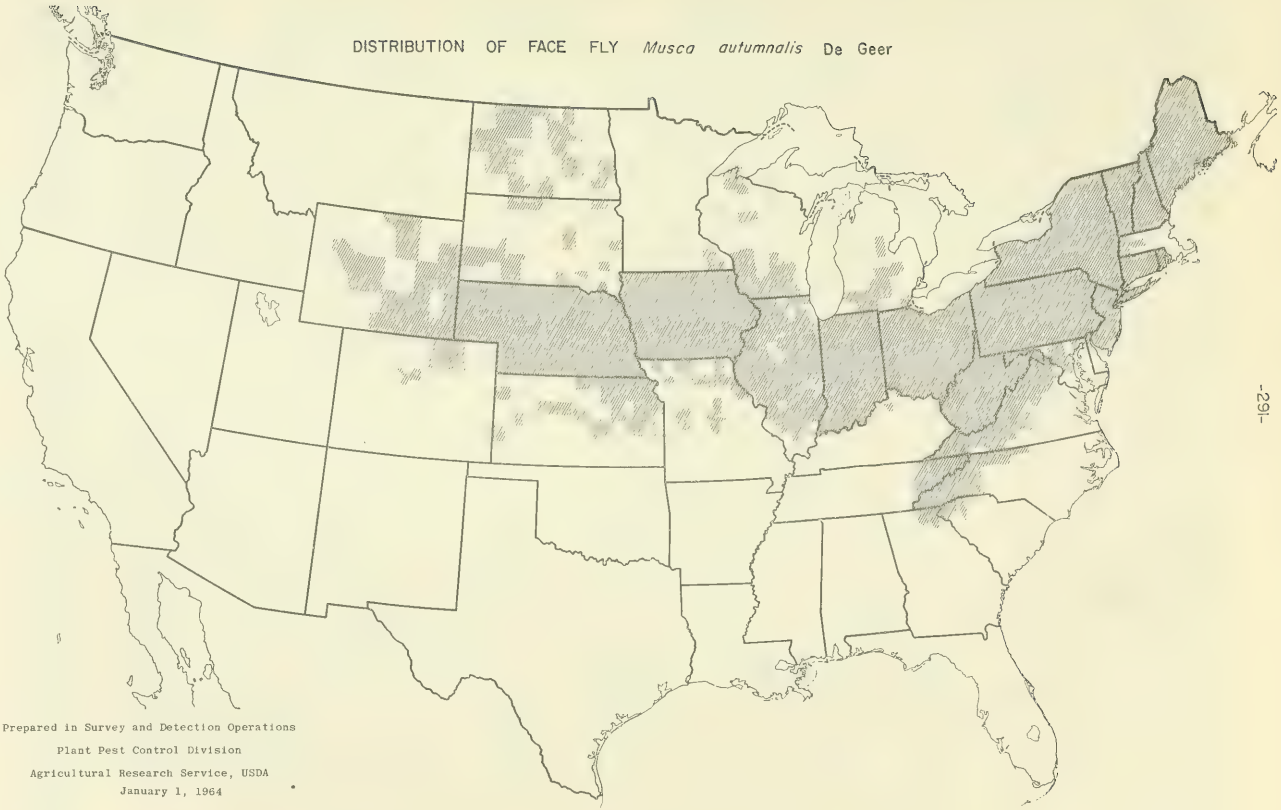
BLACK FLIES were the heaviest in recent years in the northern two-thirds of NEVADA in 1963, especially along water sheds such as the Humboldt River where the annoyance to humans and livestock was severe. Annoyance was also reported in IDAHO and UTAH. Various species were reported active during late May and early June in MINNESOTA, and Simulium spp. caused annoyance during May and early June in northern Lower Peninsula and Upper Peninsula of MICHIGAN. Various species were numerous during the spring in VERMONT. Populations of Simulium spp. appeared to be somewhat above normal in MAINE, although not to the degree mentioned previously for mosquitoes. Decreases began in mid-July. In RHODE ISLAND, black flies were biting viciously in rural areas in late April to early June. Simulium sp. was reported biting a horse in Kingston on October 20. Simulium spp. caused considerable annoyance during most of the summer to residents in central areas of MARYLAND.

GNATS in general were troublesome in many CALIFORNIA locations around residences and they were annoying to animals. EYE GNATS (Hippelates spp.) became noticeable during mid-July in the sandhills area of NORTH CAROLINA and they were troublesome up until about the first of October. However, populations were reported to be less than 1962 in this area. Eye gnats were troublesome in other areas of the Coastal Plain of North Carolina as well, and occasional reports were received in VIRGINIA.

FACE FLY (Musca autumnalis) caused considerable discomfort to cattle in western and southeastern NORTH DAKOTA. Overall, populations decreased from previous years in SOUTH DAKOTA. Spring populations were low for several weeks, with an abrupt increase during the last week of July. Populations began to decrease in South Dakota around the middle of August and ceased to cause concern for the rest of the season. High populations failed to materialize during 1963 in WYOMING. Only a few flies were found in Albany and Goshen Counties. Populations were much lower than those of 1962. Face fly populations were light to heavy in NEBRASKA, with some areas reporting a lot of trouble with sore eyes in cattle. Overwintering sites were reported from homes, schools, churches and hotels. Face fly caused no complaints during 1963 in KANSAS. No new counties were found infested. Face fly females were observed depositing eggs in abnormally cool weather (65° F.) during late May in MISSOURI. Populations averaged from less than one to 9.8 flies per animal in the central, north central, northwest and northeast areas throughout the season. Surveys were made in counties south of the Missouri River and face fly was positively identified from the following counties for the first time: Cole, Henry, Johnson, Moniteau and Miller. Counties checked with negative results were Bates, Franklin, Gasconade, Jefferson, Morgan, Osage and St. Clair. Face fly began building up rapidly in southern and central IOWA counties in mid-June; counts ranged 8-10 per animal. They continued pestiferous until fall. There were some reports of face fly in MINNESOTA, but no records of serious infestations. Face fly activity commenced in WISCONSIN in early May and increased most rapidly in southern and central counties. Populations appeared to be more pronounced in a few counties than in others. Problems were being reported from Bayfield County in mid-June, this being the principal area in northern Wisconsin to be troubled by face fly to any extent. In general, the fly was less troublesome than in 1962 in the State.

Face fly was first observed on cattle in ILLINOIS on April 16. Populations varied from zero to 3 per face through late April, May and first half of June, with one exception which was 12 per face from one herd in the northwest district

DISTRIBUTION OF FACE FLY *Musca autumnalis* De Geer



Prepared in Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service, USDA
January 1, 1964

on June 4. Populations increased slowly through late June, July and first half of August in the west, west-southwest and central districts of Illinois, and they reached their peak August 16-20 when district averages reached 4.6 per face in the west-southwest, 11.4 in the west and 14.6 in the central district. Populations in the northeast and northwest districts increased more rapidly and averaged 30 per face in the northwest and 20 per face in the northeast district August 12-15. Surveys made in Illinois counties not known to be infested in the southern area did not reveal any infestations, thus indicating for the second year that there has been little or no southern migration of the species. Face fly apparently began its buildup in the central area of INDIANA the first part of July when counts of up to 25 per face were reported. Dry weather apparently affected the buildup in that State. Populations were generally low over OHIO in 1963. Animals were seldom greatly annoyed and control measures were seldom necessary. The low populations were due to adverse weather conditions. Problems in MICHIGAN with face fly were fewer than during other recent years, and no general buildup occurred during the season.

Face fly populations were high in all areas of VERMONT, but they were lower than in the several preceding years in NEW YORK and farmers put little effort into control attempts. Face fly was generally present in RHODE ISLAND. It was abundant in PENNSYLVANIA during the season, but less than in 1962. Population levels in NEW JERSEY were also lower than in 1962. The extensive dry weather that prevailed throughout the summer was believed to have influenced this situation. Populations on cattle in central MARYLAND were about the same as in 1962. On dairy cattle in that State, counts of 10-50 per head were common during August. Control continues to be a difficult problem in Maryland. In VIRGINIA, face fly continued to cause considerable irritation to livestock in those areas where it occurs. Populations in NORTH CAROLINA were reported to be relatively low during the summer in the mountain counties. The heaviest infestation observed during a survey of 10 counties in the latter part of August was 10-15 per animal on a small group of cattle in Haywood County. Determinations of specimens from counties not previously known to be infested were made. The counties were Alleghany, Macon and Wilkes. Counts of 10-12 per animal were noted on a herd in Clay County during the third week of June. Face fly was a pest in several homes in the extreme eastern part of TENNESSEE. It was more abundant than usual in SOUTH CAROLINA, but no further spread was noted. Face fly was first observed on beef cattle on May 16 in GEORGIA. Infestations ranged from zero to 10 per animal, averaging 5 per animal. They increased to 30 per animal by mid-June. Infestations have been found in Union, Towns, Rabun, White, Habersham and Stephens Counties, Georgia.

HOUSE FLY (Musca domestica) adults were a serious problem to homeowners and ranchers throughout ARIZONA during 1963. Controls were necessary in dairy herds to prevent fly populations from developing into damaging numbers. House fly was generally low most of the year in CALIFORNIA, with a sudden upsurge in populations late in the summer. Numbers in UTAH were higher than normal. Homeowners in WYOMING were bothered by extremely large movements of house fly adults into homes and other buildings in September and October. In general, populations were higher in 1963 than in 1962. House fly was particularly numerous in COLORADO following the rain in August. Activity in OKLAHOMA started in late April, but remained low until peak populations were reached in July. Counts decreased somewhat in August and reached a second peak in September. Activity continued in sheltered areas of Oklahoma until mid-December. The principal concern with this species in ARKANSAS is in dairy barns. Normal numbers were present in KANSAS. Heavy populations of adults were very active and annoying in both city and rural areas of NEBRASKA in late September. House fly was generally present in NORTH DAKOTA, but except for scattered instances, it did not cause much concern.

House fly numbers were generally low in MICHIGAN, but a few problems were reported in September. Populations were at normal levels in OHIO and remained troublesome well into the fall, and house fly was troublesome most of the summer in VERMONT. Populations in barns were lower in NEW YORK. House fly was slow in developing

in PENNSYLVANIA due to a cool season, and later the dry summer kept populations down. Populations were at lower levels also in NEW JERSEY. House fly was troublesome in many areas of NORTH CAROLINA as usual. It was noted to be a real problem in caged layer houses during the summer months. The fly was a nuisance around hog breeder pens in ALABAMA and continued a nuisance to man in that State.

LITTLE HOUSE FLY (Fannia canicularis) appears to be more prevalent in NEW JERSEY. If not, it is at least becoming more of a problem because of the increasing number of housing developments in the vicinity of poultry farms. Numerous complaints are received from suburbanites about fly problems in that State, and these complaints generally come from homeowners who have located in the immediate vicinity of poultry farms.

HORN FLY (Haematobia irritans) was one of the major pests of cattle in WASHINGTON, with abundance about normal. Populations in NEVADA were medium to heavy statewide and were heavier later in the fall than normal. The pest was normal in number in UTAH and about the same as in 1962 in WYOMING where it caused much annoyance to cattle. Horn fly was generally present in NORTH DAKOTA, but except for scattered instances, did not cause much concern. The population cycle of this species followed that of the face fly very closely in SOUTH DAKOTA. Extreme populations occurred during the middle and last of July in that State and then decreased for the rest of the season. In NEBRASKA, horn fly counts ranged approximately 50-3,000 per animal. Low counts existed prior to mid-August, then increased sharply and reduced to lower levels in early September. It was also most numerous in COLORADO following the rain in August. Horn fly started early in KANSAS and continued pestering cattle until late fall. Activity began in OKLAHOMA in late March, but populations remained light until late April. They increased throughout May and June reaching peak population levels in mid-July. Counts declined, continuing at light to moderate levels until heavy populations again reached a peak in late September. By mid-October, populations declined in Oklahoma, but they remained active until late November. Horn fly was commonly reported in TEXAS and comparable to 1962 populations in ARKANSAS. It was prevalent over TENNESSEE and of concern to beef and dairy cattle producers in ALABAMA.

Horn fly populations in MISSOURI ranged 0-50 per animal during late April. They increased to 10-400+ during May and remained high on untreated herds throughout the season. Horn fly was the most important pest of cattle in Missouri during 1963. Similar conditions existed in IOWA in 1963. It became the most important pest of cattle in May and numbers were sufficiently high to cause extreme annoyance to unprotected animals during the summer. In ILLINOIS, horn fly averaged 5 per animal in the southwest district April 29-May 2. Populations increased rapidly and on July 1-3 populations in southern Illinois were 0-1,000 (average 250) per animal. This was the heaviest population observed in the State in 1963. Populations in northern Illinois varied 0-80 per animal on May 6-9 and increased gradually until August 12-15 when an average of 80 adults per animal was found. In the east, central and west central districts, populations of 0-400 were found during July. The highest averages for the west and central districts were 108 and 79, respectively, August 18-22. Horn fly averaged 35-100 per animal in untreated herds in Tippecanoe County, INDIANA, in early June; and the pest caused annoyance to untreated beef herds in MICHIGAN. Horn fly required control measures in PENNSYLVANIA, but populations were also slightly less abundant than in 1962. It was more prevalent than usual in VERMONT, and was again a serious problem during most of the season on unprotected beef and dairy animals in all sections of MARYLAND. Light to medium infestations occurred in several VIRGINIA counties. Horn fly was first observed on April 4 in GEORGIA. Counts of 15 per animal were recorded on that date. Infestations increased to 500 per animal on May 18, and decreased to 112 per animal by October 2.

STABLE FLY (Stomoxys calcitrans) appeared early in WISCONSIN and dominated in most areas as the primary pest of man and animals. It was rather scarce through May and June in ILLINOIS, but increased in July and August. In August, district averages were 12 flies per animal in the northwest, 4.8 in the northeast, 8.3 in

the west, 4.8 in the central and 5.3 in the west-southwest. Stable fly also became extremely annoying to unprotected animals in IOWA in July, but it was low throughout MISSOURI. Stable fly became active in mid-April in OKLAHOMA, but counts remained generally low until late May when counts increased to moderate numbers by late June. Infestations fluctuated up and down, but heavy counts were noted in the southeast during October with activity continuing until mid-November. The fly started early in KANSAS and was a pest of cattle until late fall. It was particularly numerous in COLORADO following the rain in August. Stable fly counts in NEBRASKA ranged 5-60 per leg on animals, causing much annoyance to cattle. The fly was generally present in NORTH DAKOTA, but except for scattered instances, it did not cause much concern. Stable fly was about normal for the year in UTAH.

SCREW-WORM (*Cochliomyia hominivorax*) eradication efforts in the Southwest are based on the sterile fly technique developed by research entomologists. Females that mate with sterilized males lay eggs that do not hatch. If enough sterilized males are systematically released to overwhelm the native flies, the native population quickly declines. If the release of sterilized flies is continued long enough, eradication of the species must result. The Southwest program, a cooperative effort, was started early in the spring of 1961. Each week up to 140 million screw-worm flies are being reared and made sexually sterile in special facilities at a United States Department of Agriculture laboratory constructed on the Moore Air Force Base near Mission, Texas. These are released over areas of southern and central TEXAS, southern NEW MEXICO and northern portions of the Republic of Mexico. A barrier zone of sterile flies has been established and is maintained along the Mexican, Texas, New Mexico border to prevent reinfestation of the eradication area. Livestock producers, county agents, predator-control workers, sportsmen and other volunteer observers are cooperating by promptly reporting screw-worm cases found in domestic and wild animals. Cooperative surveys by USDA and Mexican Department of Agriculture personnel in northern Mexico evaluate the threat of screw-worms migrating through or into the sterile fly barrier zone. Inspection and quarantine activities along the Mexican border have been intensified, and animals found to be infested with the pest are rejected entrance into Texas.

It has been estimated that screw-worm incidence in the Southwest has been reduced almost 99 percent over the pre-program years. By mid-December of 1963, the screw-worm populations appeared to be virtually eliminated in the eradication area. Each year since eradication was achieved in the Southeastern United States, screw-worms have managed to penetrate into the free area. For the first time in more than 30 years, no screw-worm cases were reported east of Texas and Oklahoma during 1963. Screw-worm infestations were above normal for the year in ARIZONA. A decrease was found in the southeastern area of the State, but an increase was noted in the north central area of Arizona.

Larvae of BLACK BLOW FLY (*Phormia regina*), which occur throughout the winter following dehorning operations in SOUTH CAROLINA, are preventing farmers in the Piedmont area of that State from dehoring when they should. Black blow fly was more abundant than usual in UTAH. BLOW FLIES and FLESH FLIES were troublesome around poultry establishments in ALASKA where manure was allowed to accumulate untreated. HOUSE FLIES and other flies were very bothersome and annoying to homeowners during the fall months in most areas of NEW MEXICO.

HORSE FLIES and DEER FLIES were of minor importance to livestock in ALASKA, but they were annoying to swimmers in the warmer areas of the State, especially on the beaches. Horse and deer flies were more numerous in the central and northern counties of NEVADA than for several years, but numbers were about normal for the year in UTAH. High populations of *Tabanus* spp. (horse flies) and *Chrysops* spp. (deer flies) were found bothering livestock in all areas of WYOMING; counts were higher than in 1962. The highest numbers were found in Lincoln, Teton, Fremont, Carbon and Goshen Counties. Several species of deer and horse flies were commonly reported in TEXAS. Activity of *Tabanus* spp. and *Chrysops* spp.

was reported in OKLAHOMA from early April until late October, with moderate to heavy numbers present throughout the eastern part of the State. A horse fly (Hybomitra lasiophthalma) was heavy along coastal areas of LOUISIANA in the spring. Tabanus spp. were present in low numbers in KANSAS and infestations were lighter than the preceding year in ARKANSAS. Emergence of Tabanus equalis was noted in early June in the central part of MISSOURI. During June, populations of T. lasiophthalmus, ranging from zero to forty per animal, were observed feeding on the undersides of horses and cattle in the east central part of that State. The highest counts were made on horses. Horse flies were generally low throughout Missouri in 1963. Horse flies and deer flies became fairly abundant in many areas of IOWA during the year. They annoyed cattle, horses and humans. In ILLINOIS, horse flies were scarce in most areas of the State, with only occasional specimens being observed. Exceptions were in southern Illinois where 0-6 (average 1.6) horse flies per animal were observed July 1-3, and one herd in the west-southwest district averaged 4.2 horse flies per animal August 18-22 while none were observed in six other herds in the west-southwest district. Horse and deer flies began appearing the first week of June in WISCONSIN and were quite annoying in certain areas throughout most of the summer. In MICHIGAN, Chrysops spp. became especially annoying in late July in some resort areas of the Lower Peninsula. Chrysops spp. were also especially annoying in rural areas of RHODE ISLAND in July and August. They appeared to occasion more comment than usual in that State. Tabanus spp. and Chrysops spp. were again annoying to man and animals in all tidewater areas of MARYLAND.

COMMON CATTLE GRUB (Hypoderma lineatum) infestations were generally light in GEORGIA, but some herds had a few individual animals with high infestations. Common cattle grub was of concern to beef and dairy producers in ALABAMA, and Hypoderma sp. was present in moderate numbers in TENNESSEE. Unspecified cattle grubs increased in the Columbia area of SOUTH CAROLINA. Common cattle grub and NORTHERN CATTLE GRUB (Hypoderma bovis) were present in approximately equal numbers in backs of some native beef animals examined in Wake County, NORTH CAROLINA, the second week of February. The latter species was the only one present when part of the same animals were examined on March 8. About 5 per animal were found each time on one group of 25 animals. Individual animals with as many as 50 grubs were reported not uncommon in some of the mountain counties. Populations of common cattle grub were about average for the year in NEW YORK.

Common cattle grub was commonly reported in TEXAS and moderate to heavy infestations were present from January through mid-March in OKLAHOMA. Fall activity was first noted in Oklahoma in early December. Control measures for common cattle grub continue to improve in ARKANSAS, resulting in much lower grub counts. Common cattle grub was about normal in number in KANSAS and UTAH, as was northern cattle grub in the latter State. In NEW MEXICO, the majority of ranchers treated for cattle grubs in 1963. Hypoderma spp. populations were at approximately the 1962 level in NEVADA, and infestations averaged medium on cattle in western NORTH DAKOTA in late March and early April. Life cycles occurred at normal times in NEBRASKA, with most "gadding" of cattle noted during late June. Grub counts were light to moderate in Nebraska.

Common cattle grub and northern cattle grub were still among the worst pests of WYOMING cattle during 1963, as was the situation in 1962. Low populations of both species occurred during the winter in Gallatin, Meagher and Sweet Grass County areas of MONTANA, but in Fergus County, same State, common cattle grub was present in greater numbers. The usual population levels of both species of cattle grubs occurred in WASHINGTON, with about 8-10 grubs per head in untreated herds. No cattle grubs were reported in ALASKA. Also in Alaska, a REINDEER WARBLE (Oedemagena tarandi) continued to heavily infest reindeer and caribou throughout the northern areas of the State.

SHEEP KED (Melophagus ovinus) infestations were medium to heavy in several areas of NEVADA and about normal for the year in UTAH. Sheep ked was common throughout WASHINGTON as usual. In NEW YORK, it was present in many flocks, but no unusual

outbreaks occurred. Use of the sprinkler can control method for farm flocks has considerably reduced incidence of this pest in New York.

Periodic outbreaks of BROWN DOG TICK (Rhipicephalus sanguineus) occurred in yards, kennels and residences in CALIFORNIA, and infestations continued to increase in Clark and Washoe Counties, NEVADA. Large numbers were a serious problem to home-owners in Yuma, Maricopa, Pima and Pinal Counties, ARIZONA, in 1963. In TEXAS, complaints of infestations around homes were received in many areas of the State as was the situation in OKLAHOMA and KANSAS. Brown dog tick appeared to be more abundant than usual in SOUTH CAROLINA. It was reported from an increasingly large number of locations as a household pest. In all instances, household pets such as dogs were involved. Many homeowners also complained in DELAWARE, PENNSYLVANIA and RHODE ISLAND. The frequency of complaints during the season was negligible in Rhode Island, however, compared to those received during colder months.

AMERICAN DOG TICK (Dermacentor variabilis) was reported several times in VIRGINIA and MARYLAND. The tick is now generally distributed throughout RHODE ISLAND, with complaints beginning in mid-April and decreasing in July. A count of 70 per drag was made in Jamestown, Rhode Island, on May 22. American dog tick was very abundant in eastern areas of NORTH DAKOTA, and it was reported very numerous by May 17 in various parts of MINNESOTA, including the St. Paul-Minneapolis area. The tick continued active in Minnesota through June and later. Very high populations were present in many areas of NEBRASKA in July and August, with both domestic and wild animals being hosts to very large numbers of ticks. In KANSAS, more infestations on humans and dogs were reported in 1963 than normal. American dog tick populations were lower than usual in CALIFORNIA.

WINTER TICK (Dermacentor albipictus) populations were heavy on wildlife and livestock during the fall and winter months in OKLAHOMA, and the species was commonly reported in TEXAS. High populations of the ROCKY MOUNTAIN WOOD TICK (D. andersoni) were present in brush areas along the North Platte River Valley of NEBRASKA in May, and the species was about normal for the year in UTAH. EAR TICK (Otobius megnini) was commonly reported in TEXAS and approximately normal in numbers in UTAH.

TROPICAL HORSE TICK (Dermacentor nitens) was recently proven to be a vector of a devastating disease of horses, equine piroplasmosis. The tick was first found in FLORIDA during the summer of 1961. It was later found in GEORGIA. The disease was first diagnosed in 1961 in an animal stabled at the Miami Police Academy in Florida. Since present diagonostic methods are very expensive and and chemotherapeutic agents are not known that will cure the disease, vector control has been an important part of this disease control program. The disease has been reported principally in three counties in southeast Florida and one premise in southern Georgia. Vector control consists of spraying horses at three-week intervals with an appropriate tickacide and hand treating horses' ears and other sites of predelection with a tickacide in oil. It is believed that reducing the number of tropical horse ticks has been effective in reducing the incidence of equine piroplasmosis in Florida.

TICKS, primarily LONE STAR TICK (Ambylomma americanum), were heavier than normal on untreated herds in heavily wooded areas of ARKANSAS. Populations of lone star tick became active during early March in OKLAHOMA and continued heavy on live-stock throughout the eastern half of the State through August. Lone star tick infested a herd of beef animals in Hancock County, GEORGIA (averaged 50 per animal), and the pest was commonly reported from Texas as was GULF COAST TICK (A. maculatum) in the latter State.

NORTHERN FOWL MITE (Ornithonyssus sylviarum) remains the most serious pest of chickens in NEW YORK. Numerous outbreaks occurred and claimed resistance to malathion apparently contributed to poor control. Use of another material, particularly applied by misting equipment, has served to bring many of these

infestations under control. On a few farms, northern fowl mite populations were noted to be high even during the summer. Incidences of this mite on poultry and invading residences and business establishments in CALIFORNIA were up again in 1963. It was also numerous in some flocks of poultry in the Matanuska Valley of ALASKA. A heavy infestation of TROPICAL FOWL MITE (O. bursa) occurred in a commercial flock in one area of Sussex County, DELAWARE. This was the first known record of this species in the State.

CHICKEN MITE (Dermanyssus gallinae) was found in some flocks of chickens in the Matanuska Valley of ALASKA, and undetermined species of mites were reported in some areas of that State. Populations of chicken mite and poultry lice were present in NEW YORK, but serious outbreaks were very infrequent.

In CALIFORNIA, the TROPICAL RAT MITE (Ornithonyssus bacoti) was unusually bothersome to homeowners and MUSHROOM MITE (Tyrophagus putrescentiae) is becoming more and more common in household and business establishments. Also, instances of occurrence of an EARTHWORM MITE (Fuscuropoda agitans) have been more frequent and heavier populations occurred during 1963 in California. A possible strain of this mite was found in chicken droppings in San Joaquin County. This particular mite was successfully eliminating house fly (Musca domestica) eggs which resulted in excellent fly control.

Unspecified CHIGGERS were a nuisance in untreated areas of KANSAS and they attacked man and pigs in central and eastern areas of PENNSYLVANIA. In CALIFORNIA, a local, heavy infestation of Euschongastia sp. was found on horses in Tuolumne County.

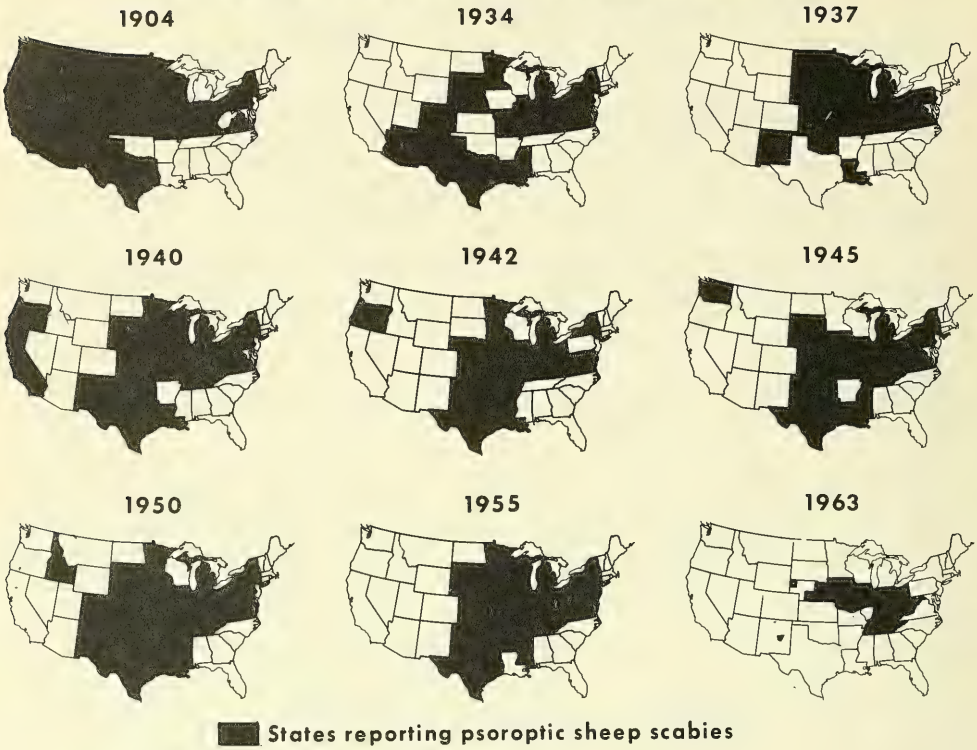
Sarcoptic and psoroptic MANGE MITES were eradicated from farm animals in NEW YORK and no infestations were known at the end of the year.

SHEEP SCAB MITE (Psoroptes ovis)* was reported in 229 flocks of 22,887 sheep in 169 counties in 19 States in the calendar year 1963. The eradication program has resulted in elimination of the pest from many counties in several States. At the end of the year, 2,416 counties were "sheep scabies free", and 424 were actively engaged in eradicating the pest. Only 314 infested counties had not established an eradication program. In August 1960, when the program began, 1,689 counties had not established an eradication program, only 44 infested counties had, and there were 1,421 counties considered free of the pest. In 1963, approximately 15 million sheep were inspected on farms and ranches and 10 million at public stockyards. CATTLE SCAB MITE (Psoroptes sp.) infested two herds of cattle in TEXAS and one in NEW MEXICO during 1962. No psoroptic cattle scabies has been reported since March 1962. Approximately 12 million cattle are being inspected for this mite each year on farms and ranches and 20 million at public stockyards. A new mite parasite of domestic cattle, Psorergates bos, was collected from a Hereford bull in Quay County, NEW MEXICO, in January of 1963.

CATTLE BITING LOUSE (Bovicola bovis) was common on young stock in winter housing in ALASKA, but populations decreased rapidly as weather warmed and cattle were out of doors most of the time. In WASHINGTON, cattle biting louse, SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) and LONG-NOSED CATTLE LOUSE (Linognathus vituli) were some of the other major pests of cattle and in about normal abuncance. Although many cattle herds throughout WYOMING have been effectively treated, short-nosed cattle louse and Solenopotes capillatus still remain a serious problem. In NORTH DAKOTA, reported infestations of cattle lice were spotty and average numbers were in the medium range. Short-nosed cattle louse was the dominant species in that State. A heavy infestation of cattle biting louse appeared on a large herd in PENNSYLVANIA that had come from out of the State. In GEORGIA, cattle biting louse was light to moderate and Solenopotes capillatus was mostly light, with some moderate infestations. However, long-nosed cattle louse is the most common species found on cattle in Georgia. Infestations were light to heavy, with most being light to moderate.

*See map top of page 298.

STORY OF SHEEP SCABIES ERADICATION*



CATTLE LICE were reported from a few locations of CALIFORNIA as heavy early in the year, and they remained the number one pest of cattle in NEVADA in 1963. Cattle lice were about normal for the year in UTAH and commonly reported in TEXAS. They were especially bad in some NEW MEXICO cattle herds during the winter and early spring. Majority of ranchers in New Mexico treat for lice as well as for cattle grubs. In OKLAHOMA, moderate to heavy infestations of several species were present throughout the State from January through April when populations declined. The first fall activity was noted in late November in Oklahoma. Light to moderate cattle lice populations existed the first part of the year in NEBRASKA. About one percent of the cattle in MONTANA are affected; these "carriers" should be treated. About half of the "carriers" in Montana are bulls. Cattle lice were annoying in NEW YORK and they caused losses where control measures were not applied.

* See sheep scab mite, page 297.

HOG LOUSE (Haematopinus suis) infestations ranged from light to heavy on hogs throughout OKLAHOMA from January through March. Fall infestations became active in mid-November, with some heavy populations present. Hog louse populations were normal for the year in UTAH and of concern to swine producers in ALABAMA. This pest and SHEEP LICE were present and caused annoyance and loss where controls were not applied in NEW YORK.

CHICKEN BODY LOUSE (Menacanthus stramineus) moderately to heavily infested most farm flocks of chickens in the southeastern area of OHIO in early April. Lice activity occurred mostly at the vent of all birds. One heavy infestation revealed 15 lice per square inch of vent with 500+ lice per feather.

CAT FLEA (Ctenocephalides felis) and DOG FLEA (C. canis) infestations seemed to be heavier and more persistent than usual in RHODE ISLAND. Numerous complaints were received from all parts of the State in August and early September. An undetermined species of flea troubled workers in a large brooder house in Worcester County, MARYLAND, in April. Fleas were reported as a "vacation pest" on June 25 in SOUTH CAROLINA and they were a nuisance in homes rather generally in TENNESSEE. Cat and dog fleas caused considerable concern throughout OKLAHOMA, especially when infestations moved into homes. In NORTH DAKOTA, frequent reports of fleas in homes were received from various parts of the State. The only identified specimens in North Dakota were of dog flea from the Fargo area. Many reports of cat flea and dog flea infestations in homes were received from the Minneapolis-St. Paul area of MINNESOTA, and outlying areas. These species apparently were more numerous than in previous years. Dog flea was of some importance in OREGON in 1963. Both cat flea and HUMAN FLEA (Pulex irritans) were present in CALIFORNIA, but cat flea was the predominant species encountered. The year was conducive for a flea buildup.

BLOODSUCKING CONENOSE (Triatoma sanguisuga) became of concern to residents of the Hill County area of TEXAS and in west central Texas. A WESTERN BLOODSUCKING CONENOSE (T. protracta) was reported invading residences many times in CALIFORNIA, but in only a few instances were humans bitten as compared with the presence of the insect.

A moderate infestation of SWALLOW BUG (Oeciacus vicarius) was reported from Dennysville, MAINE, where swallows were nesting over a room window. The bugs reportedly were dropping from the nest causing annoyance to the occupants of the house. In PENNSYLVANIA, several infestations of swallow bug were noted and, in one instance, biting of humans was reported. BAT BUG (Cimex pilosellus) infestations were reported from Mt. Eaton in Wayne County, OHIO, on May 5. Occupants of the second floor bedrooms were annoyed. Bats were abundant in the attic.

VESPID WASPS were common in RHODE ISLAND in late summer and early fall, but the volume of complaints was less than in recent years. BEES and WASPS were a statewide problem in NEW JERSEY. Homeowners were quite concerned regarding the presence of these insects around homes and picnic areas. Since many natural water sources were eliminated due to the drought, bees and wasps were especially troublesome around swimming pools, refreshment stands and bird baths. YELLOW JACKETS were more numerous in late summer and fall in GEORGIA than in an average year. There were numerous complaints of people being stung. Vespid wasps were in about normal abundance in homes and other buildings in UTAH during 1963.

PUSS CATERPILLAR (Megalopyge opercularis) caused considerable attention during August and September in OKLAHOMA, but most specimens submitted for identification were not this species. Increased infestations and spread of AMERICAN DAGGER MOTH (Acronicta americana) in southern Washoe County, NEVADA, resulted in increases in the number of people developing a rash after handling the larvae.

A PICNIC BEETLE (Glischrochilus quadrisignatus) began appearing during the first warm days of May in WISCONSIN and was troublesome by the middle of June to picnickers. Although common, the species appeared to be less of a nuisance than in 1962.

Occurrences of a BROWN SPIDER (Loxosceles reclusa) in homes throughout OKLAHOMA were quite numerous, with occasional bites reported. In ILLINOIS, specimens of this spider were sent in for determination from Pulaski, Moultrie and Monroe Counties in 1963, making a total of six, the number of counties known to be infested in the State. This brown spider has never been reported from MICHIGAN, but inquiries regarding it were common in Wayne County following a September 22 Columbia Broadcasting Service report on the pest.

BLACK WIDOW SPIDER (Latrodectus mactans) was more numerous in residences than in past years in CALIFORNIA. It was very prevalent in new subdivisions. Populations in UTAH were about normal for the year.

HOUSEHOLD AND STRUCTURAL INSECTS

Highlights:

Collectively, TERMITES were the major structural pest problem in California, Missouri and Maryland. Overall, similar conditions probably exist in other States where termites occur, particularly those in the South. Various species of ANTS were a nuisance to homeowners in 1963, with CARPENTER ANTS apparently causing the most annoyance. CLOVER MITE and BOXELDER BUG were frequent invaders of homes during the spring and fall in numerous areas of the country. They were the subject of many complaints. EUROPEAN EARWIG was a considerable nuisance in residences in several areas of northern California and it is becoming a major source of insect pest annoyance in areas of Maine. In Arizona, another EARWIG (Labidura riparia) became a real nuisance in the southern area by invading homes. L. riparia was also a pest in Georgia and South Carolina.

COCKROACHES were, as usual, reported numerous times during 1963. BROWN-BANDED COCKROACH predominates in Alaska and probably does in California. GERMAN COCKROACH, ORIENTAL COCKROACH and AMERICAN COCKROACH were also of importance along with brown-banded cockroach in certain States. LARDER BEETLE was reported to be unusually numerous in many areas of Minnesota, and the pest was more common than recent years in Michigan. STRAWBERRY ROOT WEEVIL was a nuisance in homes in Maryland, Ohio, Michigan, Wisconsin, North Dakota and Nebraska. Locally, SPRINGTAILS, MILLIPEDS, CARPENTER BEES, HORNTAILS, FALSE CHINCH BUGS, FIELD CRICKETS, CLOTHES MOTHS, CARPET BEETLES, SPIDER BEETLES, POWDER-POST BEETLES and FLIES were troublesome to homeowners. Several States also reported infestations of various insects in food stored in the home.

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus), WESTERN DRYWOOD TERMITE (Incisitermes minor) and PACIFIC DAMPWOOD TERMITE (Zootermopsis angusticollis) were very prevalent statewide in CALIFORNIA, and collectively these termites were the major structural pest. Western subterranean termite and Pacific dampwood termite were also of some importance as structural pests in OREGON. Subterranean termites, including western subterranean termite, were approximately normal in numbers and/or injury for the year in UTAH. In Clark County, NEVADA, a DAMPWOOD TERMITE (Paraneotermes simplicicornis) heavily infested and damaged a home.

SUBTERRANEAN TERMITES (Reticulitermes spp.) were of concern to many residents in representative areas of TEXAS, and over 6,000 buildings were reported to have been treated for termites in KANSAS during 1963. In MISSOURI, swarming termites were observed in the central area in early April. Reports of termite damage were

received from areas throughout the State. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) is the most important structural pest in Missouri. A termite, Reticulitermes sp., was observed in a home at Arnegard, NORTH DAKOTA. The known species in that State are R. flavipes and R. tibialis. Reported infestations of subterranean termites in MICHIGAN were relatively few during the year. In OHIO, an infestation of I. minor was found in a wooden ceiling of a military air base near Fairborn (Greene County), west central area of the State.

The first swarms of eastern subterranean termite were recorded in RHODE ISLAND at Cranston, Providence County, on February 22, and swarming continued regularly through late May. The volume of complaints in Rhode Island was perhaps a little lighter than average. Termite swarms in central and northern NEW JERSEY appeared shorter in duration than in 1962. In southern counties, there was a considerable reduction in the number of swarms. Complaints of termites were about normal for the year in NEW HAMPSHIRE.

Subterranean termites (Reticulitermes spp.) were again the most important pests of building structures in MARYLAND. In the spring, numerous winged forms were received for identification. A similar condition was reported from VIRGINIA. Eastern subterranean termite was reported to be swarming in a basement of a Wake County, NORTH CAROLINA, home during the third week of February. A number of specimens were received for determination during February, March and April.

POWDER-POST BEETLES (Lyctus spp.) were of some importance as structural pests in OREGON in 1963, and they were of concern to residents in several areas of TEXAS. WHARF BORER (Nacerdes melanura) adults were found emerging in a Newport, RHODE ISLAND, building on June 18. SOUTHERN LYCTUS BEETLE (Lyctus planicollis) and a SHOT-HOLE BORER (Scolytus sp.) were recorded as structural pests in MISSOURI during the year. In CALIFORNIA, a NEW-HOUSE BORER (Arhopalus productus) occurred in new dwellings at about the same level as past years.

BLACK CARPENTER ANT (Camponotus pennsylvanicus) was found and reported in VERMONT homes in usual numbers, and complaints concerning unspecified ants were about normal in NEW HAMPSHIRE. There were numerous reports of house infestations of CARPENTER ANTS (Camponotus spp.) in RHODE ISLAND. The increase is apparently associated with the increase in woodland homes. PAVEMENT ANT (Tetramorium caespitum) was probably the most ubiquitous ant in Rhode Island, with alates of this species commonly confused with those of termites. Complaints were received statewide throughout the year. It is believed that the frequence in which pavement ant was received for identification was associated with building styles-patios, breezeways, slabs and fireplaces. LARGER YELLOW ANT (Acanthomyops interjectus) swarms were conspicuous in the Metropolitan Providence area of Rhode Island in September.

Pavement ant, larger yellow ant and carpenter ants were troublesome throughout the year in NEW JERSEY. Many people associated the mating flights of these ants with termite swarms. In MARYLAND, various species of ants, especially larger yellow ant and pavement ant, caused annoyance to homeowners throughout the State. A similar situation existed in VIRGINIA, when winged forms of ants, especially Acanthomyops spp., Camponotus spp. and pavement ant, were common in many homes from early March through early June and in early October. Larger yellow ant and carpenter ants (Camponotus spp.) were received a number of times for identification in NORTH CAROLINA.

Carpenter ants (Camponotus spp.) were of concern to many residents in representative areas of TEXAS, and samples were submitted by homeowners for identification and control recommendations on numerous occasions in MICHIGAN. Carpenter ants were also observed in homes throughout NORTH DAKOTA, and they were unusually abundant in CALIFORNIA dwellings during the year where they were often confused by homeowners with termites. Carpenter ants damaged several log buildings and a few utility poles where wood preservative was not applied heavily enough in ALASKA. Fence posts of untreated spruce are also commonly attacked in Alaska. About normal numbers of carpenter ants were reported in UTAH.

CARPENTER BEE (Xylocopa virginica) was a nuisance to homeowners in SOUTH CAROLINA in 1963. There were more complaints in the upper Piedmont than at any time in the last 30 years. Carpenter bee was also reported as a structural pest in MISSOURI in 1963.

HORNTAILS (Sirex spp.) were reported many times from new dwellings in CALIFORNIA. These pests have been a continuing problem for the past three years in that State. In ALASKA, a HORNTAIL (Urocerus flavicornis) was numerous around buildings made of green spruce and emerged from larger timbers. Occasionally this species would emerge into homes in Alaska.

CLOVER MITE (Bryobia praetiosa) was reported on numerous occasions in VERMONT homes. House infestations were present in all parts of RHODE ISLAND from April through late May. It was heaviest in newer suburbs with pampered lawns. Individual infestations seemed unusually heavy. Numerous complaints were received from Warwick and Cranston in mid-October. Fall complaints are unusual in Rhode Island. Clover mite was one of the major household pests throughout NEW JERSEY during the spring, fall and winter months. The majority of the problem areas were in housing developments or older established residences with well kept lawns. Clover mite continued a serious nuisance pest throughout most of the spring period in DELAWARE, especially in New Castle County, and similar conditions were reported in MARYLAND, PENNSYLVANIA, VIRGINIA and NORTH CAROLINA although some infestations were noted during August in Virginia and complaints were received during the first four months of the year in North Carolina. Clover mite invaded homes rather generally in TENNESSEE and was reported during late March in SOUTH CAROLINA. Infestations were reported throughout the year by homeowners in OHIO and it was observed in homes generally in NORTH DAKOTA. The pest entered homes in Livingston, Harlowton, Plentywood, Glendive and Bozeman, MONTANA; and migrations into homes and motels in NEVADA were heavy in the winter and spring, especially in the northern and western counties. Clover mite was also more abundant in homes than normal during the spring of 1963 in UTAH; several thousand homes were invaded. Clover mite continued as a household pest in CALIFORNIA by invading residences in many locations, and it was a household invader in the Anchorage area of ALASKA.

BOXELDER BUG (Leptocoris trivittatus) was a nuisance in several communities of NEW JERSEY during the fall and early winter months, and it migrated into PENNSYLVANIA homes. In the fall, this species invaded many homes in all sections of MARYLAND and caused considerable alarm. Numerous reports were also received from March through early June and late August through November in VIRGINIA. Boxelder bug was generally a nuisance in TENNESSEE and many homes in the central area of OHIO were invaded in 1963, but populations were fewer than in 1962 in this area of Ohio. In MICHIGAN, fewer than the usual number of reports were received during the late summer and fall months indicating a reduced number of homeowner problems from this species entering homes in the State. Boxelder bug was observed in homes throughout NORTH DAKOTA in 1963. The species was more abundant than normal in UTAH where several thousand homes were invaded in fall and winter, and light infestations were found in many homes and yards in Maricopa and Pinal Counties, ARIZONA, in 1963. In NEVADA, this species created a nuisance by entering homes in eastern areas and another species, L. rubrolineatus, was similarly a nuisance in western areas.

FALSE CHINCH BUGS (Nysius spp.) entered homes in heavy numbers in Elko and Lyon Counties, NEVADA, and populations were above average in UTAH. Several very large migrations were observed in the latter State, some of which caused considerable alarm to homeowners. Adults of HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) and of P. celtidisvesicula continued to be a nuisance around windows and doors of KANSAS homes as they sought overwintering quarters in the fall.

EUROPEAN EARWIG (Forficula auricularia) was a considerable nuisance in residences in several areas of northern CALIFORNIA and it became generally abundant and invaded homes in northern IDAHO during the late summer. The pest was

approximately normal in number for the year in UTAH. European earwig is becoming a major source of insect pest annoyance to homeowners throughout Androscoggin, Sagadahoc, York and Cumberland Counties, MAINE. Numerous inquiries were received by State and Federal authorities for information on control measures for this species in Maine. In RHODE ISLAND, European earwig appeared in June and reached large numbers in August. The initial buildup seemed slower than usual. Earwigs, probably European earwig, were found in VERMONT at Burlington, St. Johnsbury and Waterbury.

An EARWIG (Labidura riparia) was a local problem in residence in El Cajon area of CALIFORNIA. This earwig is extending its range in California from the desert area where it first appeared a few years ago. This is a particularly objectionable species since it is odorous. In ARIZONA, severe invasions of L. riparia into homes in late summer and early fall were a real nuisance in the southern area. Continuous control measures were necessary in order to rid homes of this pest in that State. Infestations of this earwig were heavy and general over GEORGIA from the Griffin area southward. In SOUTH CAROLINA, L. riparia is a pest of the last 10 years which appears to spend the summer outdoors and migrates indoors with cool weather.

BROWN-BANDED COCKROACH (Supella supellectilium) was the most numerous of the cockroach problems in ALASKA; GERMAN COCKROACH (Blattella germanica) was a poor second. Brown-banded cockroach was of some importance as a household pest during 1963 in OREGON, and it was more abundant than normal in UTAH. German cockroach was also about normal in number in Utah. In NEVADA, increases in infestations of several species of cockroaches were noted in Clark and Washoe Counties. Several species were also a problem in households in CALIFORNIA, with brown-banded cockroach probably the most prevalent.

Brown-banded cockroach, german cockroach and ORIENTAL COCKROACH (Blatta orientalis) were reported numerous times from throughout MISSOURI, and these reports tend to indicate that cockroaches are the most important household pests in the State. In KANSAS, the usual number of questions pertaining to cockroaches were received. Cockroaches were pests in homes generally in TENNESSEE. German cockroach and brown-banded cockroach were reported a few times in VIRGINIA, and numerous reports concerning these two species were received in MARYLAND. Brown-banded cockroach continues to be a serious household pest in areas of New Castle County, DELAWARE. German cockroach infestations in NEW JERSEY were quite heavy in several major cities, and AMERICAN COCKROACH (Periplaneta americana), oriental cockroach and brown-banded cockroach infestatations appeared to increase somewhat over occurrences during 1962 in New Jersey. In RHODE ISLAND, German cockroach, oriental cockroach and brown-banded cockroach infestations were occasionally reported.

FIELD CRICKETS (Gryllus spp.) probably occurred as a household pest in CALIFORNIA more often in 1963 than in the past few years. They continued to be numerous around homes and other buildings during the summer in KANSAS and NORTH DAKOTA, but populations in OHIO were lower than in 1962. Another CRICKET (Nemobius fasciatus) was abundant and caused annoyance around homes, filling stations, motels and other buildings in ILLINOIS in late August and it invaded some residential areas of NEBRASKA in July and August.

CLOTHES MOTHS seem to be decreasing in importance in ALASKA and they were normal during 1963 in UTAH. Infestations in SOUTH CAROLINA appear to be more of a problem during the winter than thirty years ago, which is to be expected with heated homes. In NORTH DAKOTA, infestations of WEBBING CLOTHES MOTH (Tineola bisselliella) were observed in homes over the State. CASEMAKING CLOTHES MOTH (Tinea pellionella) was of concern to many residents in representative areas of TEXAS. In CALIFORNIA, a BROWN-DOTTED CLOTHES MOTH (Acedes fuscipunctella) occurred more frequently than previously; BROWN HOUSE MOTH (Hofmannophila pseudospretella) occasionally occurred in residences; and casemaking clothes moth was about normal.

Unspecified MOTH FLIES were reported numerous times in PENNSYLVANIA, and Telmatoscopus albipunctatus appeared in several homes in Anne Arundel and Prince Georges Counties, MARYLAND.

Several species of CARPET BEETLES were reported more frequently in 1963 than past years in CALIFORNIA, and VARIED CARPET BEETLE (Anthrenus verbasci) and BLACK CARPET BEETLE (Attagenus piceus) were of some importance as household pests in OREGON. Anthrenus sp. is increasing in numbers and destructiveness in ALASKA. Black carpet beetle was reported several times infesting dried foods in NORTH DAKOTA homes and the pest was severe locally in carpeting in Minot. Attagenus spp. and Anthrenus spp. continue to be major fabric pests in MICHIGAN. Carpet beetles, especially black carpet beetle, were less active than in most years in RHODE ISLAND, and occasional reports of FURNITURE CARPET BEETLE (Anthrenus flavipes) and black carpet beetle attacking woolen rugs and clothes were received in VIRGINIA.

BROWN SPIDER BEETLE (Ptinus clavipes) and an AUSTRALIAN SPIDER BEETLE (P. ocellus) were common household pests periodically during 1963 in CALIFORNIA, and adults of the latter species were abundant and annoying in residences in Skagit County, WASHINGTON, during the year. In PENNSYLVANIA, several spider beetles were recorded a number of times including Mezium affine, Gibbium psylloides, Ptinus hirtellus and WHITE-MARKED SPIDER BEETLE (Ptinus fur).

LARDER BEETLE (Dermestes lardarius) was reported to be unusually numerous in many areas of MINNESOTA, probably associated with accumulations of face flies in wall spaces. Adults and larvae were also reported from all sections of IOWA, being of concern in several locations. In MICHIGAN, reports of larval infestations, especially in ceilings, were more common than during other recent years. Larder beetle populations appeared to be about normal in UTAH.

Several States reported infestations of various insects in food stored in the home. INDIAN-MEAL MOTH (Plodia interpunctella) was reported several times in NORTH DAKOTA; more times than normal in PENNSYLVANIA; and was of some importance in OREGON and RHODE ISLAND. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was also of some importance in OREGON, RHODE ISLAND and VERMONT, and infestations of SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis) were observed over NORTH DAKOTA. RED FLOUR BEETLE (Tribolium castaneum) and CONFUSED FLOUR BEETLE (T. confusum) were widespread in cupboard and package mixes and in dry cereals in ALASKA, and the former species was of some importance in OREGON. DRUG-STORE BEETLE (Stegobium paniceum) was reported numerous times in PENNSYLVANIA as was CIGARETTE BEETLE (Lasioderma serricorne) in that State. Cigarette beetle was also fairly abundant in CALIFORNIA and reports of infestations were received in MISSOURI.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) adults entered homes in MARYLAND and caused a nuisance at several localities over the State during the summer. Many homes were also invaded in OHIO, MICHIGAN, WISCONSIN, NORTH DAKOTA and NEBRASKA. Migrations in Wisconsin started in early June and continued into late August, and complaints in that State emanated mostly from individuals living in the sandier areas of the State. Residential buildings affected in Nebraska were in the central sandhills areas. Other weevils annoying to homeowners were Trachyphloeus bifoveolatus in OREGON and WASHINGTON, Calomycterus setarius in RHODE ISLAND, and ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) in VIRGINIA and WISCONSIN. In the latter State, asiatic oak weevil was a problem, but not to the extent that strawberry root weevil was.

GROUND BEETLES were extremely abundant in Buffalo, Dawson and Lincoln Counties, NEBRASKA, in homes, motels and stores; and extremely large numbers of Harpalus sp. were observed at Bismark, NORTH DAKOTA, in mid-July where it was found in and around buildings in the downtown area. Many areas of ARIZONA were plagued by large numbers of DARKLING BEETLES (Blapstinus spp.) invading homes and causing a general nuisance. ELM LEAF BEETLE (Galerucella xanthomelaena) also invaded homes in PENNSYLVANIA, RHODE ISLAND and VIRGINIA, but not in great numbers.

Bamboo was infested in homes and other places in several States. A brown BAMBOO POWDER-POST BEETLE was found several times in NEW JERSEY; BAMBOO POWDER-POST BEETLE (Dinoderus minutus) occurred at a specialty shop in Dover, Tuscarawas County, OHIO; and Lyctus africanus and Trogoxylon prostomoides have been a continuing problem in many locations of CALIFORNIA.

CLUSTER FLY (Pollenia rudis) was abundant around houses during the spring and very troublesome in houses during early and late fall in VERMONT. Flies, especially cluster fly and FACE FLY (Musca autumnalis), were reported a few times in homes in VIRGINIA. A MARCH FLY (Dilophus strigulata) became a heavy nuisance in Los Angeles County, CALIFORNIA, in November.

SPRINGTAILS were particularly abundant in the spring of the year in CALIFORNIA and there were many complaints of household invasion. They also migrated into many homes in the central area of NEW JERSEY during June and July. PSOCIDS were abundant and annoying in residences in San Juan County, WASHINGTON, and some nuisance reports were received in CALIFORNIA and ALASKA. PILLBUGS were pestiferous in and around homes in nearly all parts of TEXAS.

MILLIPEDS were unusually bothersome around homes in NORTH CAROLINA, with heavy populations reported both during the spring and fall. A few reports were received during August in VIRGINIA and decreased populations were noted in SOUTH CAROLINA and NEW JERSEY. Millipeds were a nuisance in basements and around homes in southeast NORTH DAKOTA in 1963.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 15 April 10, 1964

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C77
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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 April 10, 1964 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS:

ALFALFA WEEVIL larvae heavy on alfalfa in number of Virginia counties, and heavy larval infestations of Hypera brunneipennis noted on alfalfa in areas of Imperial County, California. Percent survival of EUROPEAN CORN BORER larvae slightly higher than normal in northwest and northeast Illinois. (p. 309). Light to threatening populations of GREENBUG found in several Oklahoma counties, and PEA APHID heavy on uncut alfalfa in Yuma, Maricopa and Pinal Counties, Arizona. (p. 310). BROWN WHEAT MITE moderate to heavy in some Oklahoma fields, and WINTER GRAIN MITE required controls in Menard County, Texas. (p. 311).

CABBAGE APHID light to moderate on commercial cabbage in southern Georgia, and MELON APHID heavy on vegetables in Yuma, Maricopa and Pinal Counties, Arizona. (p. 312).

EASTERN TENT CATERPILLAR appearing in North Carolina, Georgia, Alabama, Arkansas, Oklahoma and Texas; some defoliation reported in Alabama and Georgia. (pp. 312, 314). FOREST TENT CATERPILLAR and another species of tent caterpillar present on live oak in 12 central Texas counties; counts varied up to 20 colonies per 10 feet of tree. Populations of tent caterpillars in Guadalupe and Blanco Counties, Texas, heavy and widespread. Numbers of BAGWORM eggs sufficient to provide extremely heavy infestations on shrubs and trees in northern Alabama. (p. 315).

CATTLE LICE continue annoying to livestock in Utah; situation serious in most beef herds in Box Elder County and populations numerous in several other counties. Controls also applied in Wyoming. (p. 317).

SOME FIRST RECORDS OF THE SEASON

CLOVER LEAF WEEVIL larvae in Maryland and Kansas; APPLE APHID hatching in Maryland; GRAPE FLEA BEETLE ovipositing in Alabama; PECAN NUT CASEBEARER and PECAN LEAF CASEBEARER in Georgia; IMPORTED CABBAGEWORM ovipositing in Alabama; SPRING CANKERWORM adults in Missouri and male in North Dakota; SMALLER EUROPEAN ELM BARK BEETLE adults in North Carolina; FACE FLY in Missouri; HOUSE FLY in Utah and Oklahoma; and MOURNING-CLOAK BUTTERFLY adults in Utah.

DETECTION

APPLE RUST MITE (Aculus schlechtendali) recorded for the first time in Ohio at Wooster. (p. 312).

SPECIAL REPORTS

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring. (pp. 313, 314).

Status of the Screw-worm in the Southwest. (p. 316).

Analysis of Insect and Mite Infestations Found in Produce from the United States Examined in Ports in Great Britain in 1963. (pp. 321, 322).

Summary of Insect Contitions in the United States - 1963
Forest Insects (p. 323).

Reports in this issue are for week ending April 3 unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL 1964

The Weather Bureau's 30-day outlook for April calls for temperatures to average above seasonal normals over the southern two-thirds of the Nation lying between the Great Plains and the East coast. Below normal temperatures are predicted for the areas west of the Continental Divide and also for the Northern Plains. Near normal averages are in prospect for areas not specified. Precipitation is expected to exceed normal over the Great Lakes, the Mississippi and Ohio Valleys, and the Far West. Subnormal amounts are indicated only for the South Atlantic coast and western portions of the Southern Plains. In areas not specified near normal precipitation is anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING APRIL 6

Arctic air moved southward early in the week. Tallahassee, Florida, registered 31° on Monday morning, March 30, and 29° on Tuesday. Cold temperatures continued in the East but milder weather returned to the West. Afternoon temperatures on Tuesday reached the 60's and 70's in Montana and the 70's and 80's over most of Utah, Colorado (except in the mountains), Kansas, and southward to the Gulf of Mexico. Light rains fell along the Pacific coast on Tuesday and spread inland to the Rocky Mountains on Wednesday. Light showers fell from Missouri to the Atlantic coast on Wednesday. Brisk southerly winds brought warmer air to the central Great Plains. Kansas City, Missouri, registered 79° and Dodge City, Kansas, 88° on Wednesday afternoon. Snow fell over the higher western mountains and the snowpack continued to increase in the Cascades and Sierra Nevadas. Snow fell over the Rocky Mountains Wednesday night. Northern Arizona received 4 inches and 3 inches fell at Ely, Nevada.

By Thursday, a storm intensified in Nebraska and Kansas. Hail fell at spots in Iowa, Missouri, and Illinois. A few tornadoes occurred in Nebraska. By Friday morning, cold rain and wet snow occurred from Nebraska to the southern Great Lakes, over upstate New York and northern New England. Showers and thunderstorms occurred over the middle Mississippi and Ohio River Valleys and the Appalachian region. By Friday noon, a cold front stretched from an intense storm over southern New England to the Oklahoma Panhandle. Another storm was gaining strength in Texas. A tornado at Wichita Falls, Texas, killed 7 persons, injured 111 others, and destroyed 200 dwellings. According to preliminary estimates, the property damage amounted to 15 million dollars. Several other tornadoes struck the Oklahoma-Texas border area on Friday and Saturday.

The weekend was stormy. Snow fell over the Rocky Mountains and from the northern Great Plains to New England. Generous rains occurred over the central and southern Great Plains and eastward to the Atlantic Ocean. Freezing rain, sleet, and a mixture of snow and rain fell along the southern edge of the snowfall area. Numerous severe thunderstorms and several tornadoes occurred over the central Great Plains and the northern portions of the Gulf States. At the end of the period, another mass of arctic air was pushing into the northern Great Plains and temperatures were again falling over that area. Snow and sleet fell over the north central States and rain along a front from the Great Lakes to Alabama and Mississippi.

Temperatures averaged above normal over the central and southern Great Plains and the western portion of the northern Plains. Temperatures averaged below

(Continued on page 319).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae medium to heavy on all alfalfa checked in Halifax County. (Reynolds, Mar. 19). First and second instars active in Pittsylvania County. (Dominick, Mar. 23). First instars 3 per 10 tips in 1 field in Patrick County. First and second instars 15 per 10 tips in field checked near Martinsville, Henry County. In another field near Martinsville, 143 larvae (first to third instars) found in 25 tips (averaged 5.7 per tip). Every tip checked infested and one had 13 larvae. Alfalfa ranged 3-6 inches in height in both counties. (Pienkowski, Mar. 23). About 25 percent of alfalfa tips infested with 1-4 first and second-stage larvae in Bedford County; alfalfa about 3-4 inches tall. From 25 to 50 percent of tips infested with 1-3 first and second instars (few third instars) in alfalfa sampled in Campbell County; alfalfa about 4 inches tall. In Prince Edward County, 30-50 percent of tips infested with up to 6 larvae per tip (mostly first and second instars); alfalfa about 5 inches tall. In Nottoway County, 25 percent of tips infested with up to 10 larvae per tip (mostly first instar), with injury barely noticeable; alfalfa about 4-6 inches tall. Damage quite apparent in alfalfa checked in Brunswick County. Nearly all tips infested with numerous first to third-stage larvae; alfalfa about 6 inches tall. (Bishop, Mar. 23). Field of alfalfa near North View, Mecklenburg County, had 37 larvae (first to fourth instars) in 3 square foot pan counts; alfalfa about 4-7 inches tall. One field near Darlington Heights, Prince Edward County, had 20 first instars per 10 tips. Field near Steeles Tavern, Rockbridge County, had 1 first instar per 10 tips. (Pienkowski, Mar. 24). Nearly all alfalfa tips infested with first to third-stage larvae in Mecklenburg County; considerable damage apparent and immediate treatment indicated. Alfalfa about 5-7 inches tall. In Halifax County, 50-75 percent of alfalfa tips infested with first to third instars; some damage evident but not enough to justify controls. Alfalfa about 6 inches tall. Situation in Pittsylvania County similar to that in Halifax County. (Bishop, Mar. 25). NORTH CAROLINA - Larvae ranged 50-150 per 50 sweeps (averaged 88) in 10 fields of alfalfa examined in Caswell and Rockingham Counties. Counts may have been affected by the cool wind blowing. Light damage observed. (Mount). GEORGIA - Light to moderate infestations on untreated alfalfa in Paulding County; treated alfalfa in northwest without noticeable infestations. (Johnson). ALABAMA - Few adults feeding and laying eggs on alfalfa in Morgan County. First-stage larvae noted on clovers in Lee County. (Barwood et al.). COLORADO - Not observed in Larimer and Weld Counties to April 2. (Simpson).

AN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Heavy larval infestations on alfalfa in Bard and Winterhaven areas of Imperial County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae active in red clover at Lanham, Prince Georges County. (U. Md., Ent. Dept.). KANSAS - Occasional specimens noted in alfalfa in southeastern area; counts low and no damage noted. (Peters).

JAPANESE BEETLE (Popillia japonica) - OHIO - First, second and third-stage larvae observed at an airport and golf course in Summit County; averaged 12 per cubic foot. Most larvae approximately 3 inches deep in soil. (Custer).

SEED-CORN BEETLE (Agonoderus lecontei) - KANSAS - Quite abundant in the air in Sumner and Sedgwick Counties, south central. (Gates).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Percent survival of larvae by districts ranged 68-84 (average 78) in northwest, 72-80 (average 76) in northeast and 60-80 (average 71) in west. Survival normal in west but slightly higher than average in northwest and northeast districts. (Ill. Ins. Rpt.).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae 10-15 per 200 sweeps of alfalfa at Gainesville. (Mead). Reported scattered on sweet corn ears at Ft. Myers, Lee County; nevertheless, 10 acres of corn refused because of earworms. (Walsh, Shirah; Mar. 24).

ALFALFA CATERPILLAR (Colias eurytheme) - CALIFORNIA - Light larval infestations on alfalfa in Fresno, Fresno County. (Cal. Coop. Rpt.). ARIZONA - Larvae averaged 30 per 100 sweeps in Buckeye area, Maricopa County; adult flight becoming numerous in Yuma County. (Ariz. Coop. Sur.). ALABAMA - Numerous adults in flight and laying eggs on clover and vetch in southwest counties. (Shuler). FLORIDA - Few larvae in alfalfa at Gainesville. (Mead).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Light in alfalfa in Gila Valley, Yuma County; moderate in western portion of Maricopa County. (Ariz. Coop. Sur.).

A LEAF TIER (Udea profundalis) - CALIFORNIA - Light populations on alfalfa in Fresno and Clovis, Fresno County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Light to threatening in Noble, Garfield, Major, Blaine, Kingfisher and Logan Counties. Some heavy counts (excess of 100 per linear foot) found in localized areas of these counties. These heavy counts not general, but reproduction occurring. Generally light with some isolated threatening spots noted in Woods, Alfalfa, Grant, northern Garfield, Kay and northern Noble Counties. A fluid condition exists in above mentioned counties with counts varying greatly from field to field and location to location within same county. No "greenbug spots" observed due to greenbug damage and only a limited amount of controls applied to date. Buildup also reported from Mountain Park area of Kiowa County, west central area. Latest reports continue to show low counts in other southwest and south central areas. (Okla. Coop. Sur.). KANSAS - Ranged 0-5 per 100 sweeps in wheat in southeast area. Specimens found only in extreme southern counties. Wheat 6-8 inches tall. (Peters). TEXAS - Few, isolated fields in Potter, Armstrong, Deaf Smith and Collingsworth Counties with populations of 100-300 per foot. Little damage expected to wheat, however. Averaged fewer than 15 per foot in Sherman and Moore Counties. (Daniels). NEW MEXICO - Continues very light in wheat fields near Portales, Roosevelt County; averaged under 1 per linear foot in fields checked. (N.M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Ranged 10-100 per 100 sweeps in southeastern area. Higher counts in southern counties. (Peters). OKLAHOMA - Moderate to heavy reproduction occurring in localized areas. (Okla. Coop. Sur.). FLORIDA - Adults 21 per 100 sweeps on rye at Gainesville. (Mead).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Spotted, light infestations of probably this species found in barley fields near Artesia, Eddy County. (N.M. Coop. Rpt.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Heavy in uncut alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Remains unusually light in Chaves and Eddy Counties on alfalfa; majority of fields checked in southern Dona Ana County appeared noninfested. (N.M. Coop. Rpt.). OKLAHOMA - Counts continue light in alfalfa checked in southeast, southwest and northwest areas. (Okla. Coop. Sur.). KANSAS - Ranged 0-20 per 100 sweeps on alfalfa in southeast. New growth of alfalfa 3-4 inches tall. (Peters). FLORIDA - Approximately 700 per 200 sweeps on alfalfa at Gaineville. (Mead).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Light to moderate in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Remains unusually light in alfalfa in Chaves and Eddy Counties; majority of alfalfa fields checked in southern Dona Ana County apparently not infested. (N.M. Coop. Rpt.). OKLAHOMA - Light, 25-50 per 10 sweeps, in Choctaw County, southeast. Activity also reported from Sequoyah County, east central. (Okla. Coop. Sur.). KANSAS - Found only on south-facing roadside embankment in Montgomery County; counts about 20-25 per square foot of crown area. Not found in open alfalfa fields in southeastern district. (Peters).

APHIDS - ALABAMA - Building up rather rapidly on bur and crimson clovers in Lee, Macon and Tallapoosa Counties. (Barwood).

LYGUS BUGS (Lygus spp.) - ARIZONA - Adult counts remain same as past week but nymphal counts increasing in Yuma, Maricopa and Pinal Counties in alfalfa. Nymphs averaged 18 per 100 sweeps in Yuma County and 15 per 100 sweeps in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). COLORADO - Moderate numbers on alfalfa in Larimer County. (Simpson). UTAH - L. elisus active in Salt Lake City area. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - FLORIDA - Adults and nymphs 30 per 200 sweeps on alfalfa at Gainesville; 19 adults and 48 nymphs per 200 sweeps collected on blue lupine in same area. (Mead). KANSAS - Ranged 0-10 per 100 sweeps in wheat in southeastern area. (Peters).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Ranged 20-25 per 100 sweeps in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). FLORIDA - Three adults per 200 sweeps on alfalfa at Gainesville. (Mead).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Observations of overwintering eggs between wheat sheaths and stems in Wayne County revealed no egg hatch. (Lyon).

LEAFHOPPERS - FLORIDA - Counts per 200 sweeps on alfalfa at Gainesville were one adult Stragania robusta, 1 adult Scaphytopius sp., 2 adults Agallia constricta, 8 adults and 1 nymph of Empoasca sp. and 2 adults of Macrosteles fascifrons. Counts per 200 sweeps on blue lupine at Gainesville were one adult A. constricta and 7 adults of Cuerna costalis. The latter from plants on higher, better drained soil; none from plants on lower, wetter part of field. Counts per 100 sweeps on rye at Gainesville were 8 adults of M. fascifrons, and 4 nymphs and 2 adults of Graminella nigrifrons. (Mead).

A DELPHACID PLANTHOPPER (Delphacodes puella) - FLORIDA - One adult collected in 100 sweeps of rye at Gainesville. (Mead).

HESSIAN FLY (Phytophaga destructor) - NEBRASKA - Wheat fields in Buffalo, Hall, Hamilton, Lancaster, Seward and York Counties examined for infestations of this species, cutworms and other small grain insects. No insects found and no visible damage seen. Soil moisture present down to 3 feet and condition of wheat appeared to be generally good. An earlier survey in mid-March in counties from Red Willow east to Jefferson along the Kansas border produced similar results, with one exception -- 2 fields of wheat in Franklin County were less than one percent infested with P. destructor. (Bergman).

GRASSHOPPERS - ARIZONA - Light, mixed infestations of Melanoplus spp. and Trimerotropis spp. nymphs in alfalfa and on weeds adjoining citrus groves on the Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

FIELD CRICKETS (Gryllus spp.) - ALABAMA - Leaving hibernation and feeding on seedling clovers and other plants in pasture and other sod areas. (Barwood).

BROWN WHEAT MITE (Petrobia latens) - TEXAS - Populations around 2,000 per foot (Henderson fork measure) with little apparent damage in Potter County. (Daniels). OKLAHOMA - Generally light in small grain fields checked in Noble, Garfield, Kay, Grant, Alfalfa, Logan, Kingfisher and Blaine Counties; moderate counts in areas of Major and Woods Counties, with some damage evident. Moderate to heavy populations reported in some Kiowa, Greer and Tillman County areas, with some estimates of up to 5,000 per linear foot in Mountain Park area of Kiowa County. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to heavy locally in Menard County; controls necessary. (Turner).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Medium infestations reported on clovers in Chilton County. (Helms).

FRUIT INSECTS

APPLE RUST MITE (Aculus schlechtendali) - OHIO - Abundant on undersides of apple leaves in partially neglected orchard at Wooster, Wayne County, on July 5, 1963. This is a new State record. Det. by D. E. Johnston and confirmed by H. H. Keifer. (Forsythe).

APPLE APHID (Aphis pomi) - MARYLAND - Hatching in large numbers on apple at West Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

BLACK PEACH APHID (Anuraphis persicaeniger) - CALIFORNIA - All stages appearing heavy on nectarine trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - Colonies noted in numbers in nonbearing apple trees in Mesa County. Very few colonies in bearing orchards where spray programs used. (Bulla).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Heavy, isolated infestations noted on apples in Coosa County; light on peaches in Morgan County. (Jarrett, Barwood). MARYLAND - Heavy in apple orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

TERRAPIN SCALE (Lecanium nigrofasciatum) - MARYLAND - Infesting peaches at Hancock, Washington County. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Infested home orchards in Union County. (Ark. Ins. Sur.). OKLAHOMA - Occurring on native and ornamental fruit trees. (Okla. Coop. Sur.). TEXAS - Many reports from wide portion of State concerning this pest on fruit trees. (Tex. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Adult feeding appearing on flower buds on isolated plants in Lee County. Egg laying underway. (McQueen).

CASEBEARERS (Acrobasis spp.) - GEORGIA - A. caryae and A. juglandis infesting pecan trees in bud in southern area. (Tedders).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate on citrus in open fields and lath houses in Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light populations appearing on new citrus growth in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Appearing on citrus where preventative treatment not applied in Yuma County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

AN APHID (Acyrthosiphon barri) - ARIZONA - Continues a problem in headed lettuce ready for harvest in Dome Valley, Yuma County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light to heavy on collards and turnips in Gwinnett County. (Vanderford). Light to moderate on commercial cabbage plants in southern area. (Ratcliffe).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on weeds near cataloup fields in Yuma County. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy on vegetables in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Large numbers on favorable weed hosts in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Heavy on weed hosts around and near potato fields in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light to moderate on commercial cabbage plants in southern area. (Ratcliffe).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Numerous adults in flight and laying eggs in Marengo County. (Shuler).

A FLEA BEETLE (Epitrix fasciata) - FLORIDA - Severely damaging stem, bloom, leaves and fruit of eggplant at Homestead, Dade County. (Wolfenbarger).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on collards in Gwinnett County. (Vanderford).

THRIPS - NEW MEXICO - Ranged 1-2 per plant in Dona Ana County onion fields; larger plants apparently had greater numbers present. (N.M. Coop. Rpt.).

A SPRINGTAIL (Hypogastrura armata) - CALIFORNIA - Medium on garlic seed in Susanville, Lassen County. (Cal. Coop. Rpt.).

COTTON INSECTS

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring - Spring 1964 collections of surface ground (woods) trash samples (two square yards per sample) have been completed in six Southern States. Wherever possible, samples were taken from the same locations that were sampled in the fall of 1963. The number of live boll weevil (Anthonomus grandis) adults per acre and the percent survival is reported in the paragraphs below. For details of the fall hibernation survey in five of these States, see CEIR 13 (51): 1413-1415.

In NORTH and SOUTH CAROLINA, samples were taken during the period March 11-27 in the same four representative areas in which fall examinations were made in 1963. In each area, a total of 30 locations (farm sites) was sampled with 3 samples at each location. The same locations were sampled in both the fall and spring examinations. The areas are as follows: Area 1 - south central South Carolina (Orangeburg, Dorchester and Bamberg Counties); Area 2 - Coastal Plains of South and North Carolina (Florence, Darlington and Marlboro Counties, S.C., and Scotland County, N.C.); Area 3 - Piedmont of South and North Carolina (Anderson, Greenville and Spartanburg Counties, S.C., and Mecklenburg, Cleveland and Union Counties, N.C.); Area 4 - north central North Carolina (Nash, Wilson, Franklin and Edgecombe Counties). The average number of live weevils per acre in Areas 1, 2 3,and 4 was 753, 2742, 134 and 107, respectively. The percent survival for these areas was 11.9, 27.4, 13.8 and 8.5, respectively. The percent survival was lowest in Area 4 and highest in Area 2. In Florence County, South Carolina, an average of 2582 weevils per acre was found for the spring of 1964 with a winter survival of 22.7 percent. The number of weevils surviving in Florence County is 3 times the number surviving in 1963. (Taft, Hopkins).

Spring trash examinations were made in GEORGIA from January to March in 19 north central counties. The number of live weevils per acre averaged 145 compared with 242 in 1963 and 847 in 1962. Six of the 19 fields were infested with the maximum taken from any field being 484. (Beckham).

Collections were started on February 24 in MISSISSIPPI and all examinations were completed on March 12. Three samples were taken from each location and either 7 or 8 locations were sampled in each county. Wherever possible, samples were taken from locations that were sampled last fall. Four counties made up each area and the State was divided into four areas as follows: Area 1 - lower delta (Sharkey, Issaquena, Yazoo and Humphreys Counties); Area 2 - central delta (Washington, Bolivar, Sunflower and Leflore Counties); Area 3 - north delta

(Coahoma, Tunica, Quitman and Panola Counties); Area 4 - hill section (Holmes, Madison, Noxubee and Monroe Counties). The average number of weevils per acre in Areas 1, 2, 3 and 4 was 753, 108, 188 and 108, respectively. The State average was 289 compared with 13 in 1963, 1132 in 1962, 1246 in 1961, 821 in 1960, 464 in 1959 and 392 in 1958. The percent survival for Areas 1, 2, 3 and 4 was 26.67, 6.56, 3.80 and 4.26, respectively. The State average (percent survival) was 9.68 compared with 0.2 in 1963, 13.59 in 1962, 8.59 in 1961, 16.23 in 1960, 12.22 in 1959 and 6.65 in 1958. (Pfrimmer).

Spring collections were made March 5-24 in northeast LOUISIANA. Three samples were collected at each location and 20 locations were used in Madison Parish, 10 in East Carroll Parish and 10 in Tensas Parish. The average number of weevils per acre was 1211 in Madison Parish, 1453 in East Carroll Parish and 484 in Tensas Parish, or an average of 1049 for the triparish area. The winter survival for the triparish area was 14 percent. In Madison Parish, where similar records have been made for the past 28 years, the survival for the winter of 1963-64 was 19 percent compared with the average of 37 percent for the 28-year period. Since these records have been made in Madison Parish, there have been 6 winters in which the survival was lower than for the winter of 1963-64. In the spring of 1963, the average number of weevils per acre for the triparish area was 121 and the winter survival 3.0 percent. Ground trash collections were made under ideal conditions last fall, but the reverse was true for this spring when collections were made. (Smith).

In central TEXAS, spring collections were made March 5-17. The same locations were sampled this spring as in the fall. Three samples were taken from each location and either 6 or 7 locations were sampled in each county. The average number of weevils found per acre in Falls, Hill, Limestone and McLennan Counties in the spring of 1964 was 403, 0, 0 and 0, respectively, with an area average of 97. The survival percentage for the area was 18.8. This compares with survival counts of 31.1, 33.7, 33.1 and 25.4 percent in March of 1960, 1961, 1962 and 1963, respectively. The number of weevils per acre found in the spring of 1963 was 452. The very hot, dry weather during the 1963 growing season caused early maturity, harvest and destruction of cotton stalks. This resulted in fewer weevils being found during the fall inspections than in the previous four years. The indicated spring survival was also very low. (Cowan).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Larvae infesting wild cotton bloom at Marathon, Monroe County, and at Cudjoe Key, Monroe County. (Humphries, Mar. 26). NEW MEXICO - Of 80 cocoons found on cotton stalk tap roots in fields where stalks had been shredded or undisturbed, 27 contained live larvae. Cocoons found one-half to one and one quarter inches below surface of soil. (N.M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Numerous on young shortleaf and loblolly pines in Morgan County where severe infestations occurred in 1963. Approximately 50 percent of pupae died from unknown causes. No emergence occurred. Pupae continue heavy. (McQueen).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Reported in ornamental peaches and plums in Union County. Newly hatched larvae appearing in areas of northwest although very little food available. (Ark. Ins. Sur.). ALABAMA - Reported from most counties in State; heavy in Dallas and central counties on wild cherry and light in Morgan and other counties along northern State line. (Jarrett, Grandberry, Shuler et al.). GEORGIA - Defoliating wild cherry in Seminole County and in Tifton area, Tift County. (Hall, Beck, Ratcliffe). NORTH CAROLINA - Larvae about 1 inch long and making 1-3 webs per tree in group of wild cherry in Scotland County. (Johnston, Mar. 27).

FOREST TENT CATERPILLAR (Malacosoma disstria) - FLORIDA - Mature larvae infesting Quercus laurifolia at Gainesville, Alachua County. Det. by L. A. Hetrick. (Fla. Coop. Sur.). TEXAS - This species and Malacosoma sp. present on live oak in 12 central counties; counts varied up to 20 colonies per 10 feet of tree in Travis, Hays and Bexar Counties to 1 per 10 feet of tree in San Saba County. Other counties surveyed included Williamson, Comal, Gillespie, Llano, Mills, Burnet, Hamilton, Kendall and Lampasas. (Meisch). Populations in Guadalupe and Blanco Counties heavy and widespread. (Tex. Coop. Rpt., Massey).

SPRING CANKERWORM (Paleacrita vernata) - MISSOURI - Male and female moths found on elm trees in Boone County (central). (Houser, Thomas, Wood). NORTH DAKOTA - Adult male noted in Fargo, Cass County; first of season. (N.D. Ins. Sur.).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Heavy on Colorado spruce trees in Corte Madera, Marin County. (Cal. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - OHIO - Injured Colorado spruce in Wooster, Wayne County. (Neiswander).

A TREEHOPPER (Platycotis vittata) - FLORIDA - Infested oak trees at Tampa, Hillsborough County, and Davenport, Polk County; controls necessary. (Brown, Norton, Mar. 23, 27, 30).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NORTH CAROLINA - Adults noted in Guilford County. (Wright).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Eggs noted in numerous bags on coniferous shrubs, willow, apples, elm and other plants throughout northern area. No hatching yet but numbers sufficient to provide extremely heavy infestations on shrubs and trees. (Jarrett et al.).

SCALE INSECTS - CALIFORNIA - Lecanium persicae heavy locally on daphne in Sacramento, Sacramento County; first record for county. Chionaspis quercus heavy on oak in Watsonville, Santa Cruz County, and Aspidiotus perniciosus heavy on rose locally in Red Bluff, Tehama County. (Cal. Coop. Rpt.). TEXAS - Lecanium nigrofasciatum locally heavy on oaks in Jefferson County. (Crocker). ALABAMA - Eriococcus azaleae heavy on azaleas on foundation planting locally in Lee County. (Hubbard, Hagler). GEORGIA - Unaspis euonymi light to moderate on euonymus and Icerya purchasi light to moderate on pittosporum. (French). FLORIDA - Conchaspis angraeci moderate on stem and bark of schefflera at North Miami, Dade County. (Dowling, Hickman; Mar. 26). A new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.).

STRIPED MEALYBUG (Ferrisia virgata) - CALIFORNIA - Continues to be found on additional properties in city of Brawley, Imperial County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (Pseudococcus citri) - FLORIDA - Infested stem of Podocarpus sp. at Jacksonville, Duval County. (Dekle, Kuitert, Mar. 26). This is a new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.). Severe on tulip bulbs at Fairvilla, Orange County. (Griffith).

PSYLLIDS - FLORIDA - Trioza magnoliae infesting red bay trees at Gainesville, Alachua County; causing leaf galls. All stages present. (Mead). TEXAS - Paurocephala ilicis adults numerous on youpon in Brazos County. (Franklin).

APHIDS - CALIFORNIA - Lachnus salignus adults heavy on pussy willow trees in Gilroy, Santa Clara County; all stages on pussy willow in Yuba City, Sutter County. Vesiculaphis sp., probably caricis, medium on azalea planting stock Altaville, Calaveras County. Adult Procipilus sp. appearing on Modesto ash at trees in Red Bluff, Tehama County; this is unusually early in this location. Amphorophora azaleae nymphs and adults light on azalea nursery plants in Fresno, Fresno County. (Cal. Coop. Rpt.). FLORIDA - Cinara thujafilina moderately damaging Golden Tip arborvitae at Bartow, Polk County. (Snell, McLeod, Mar. 20).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - VIRGINIA - Heavy on American holly locally in Charlottesville, Albemarle County. (Rowell, Smith; Mar. 11).

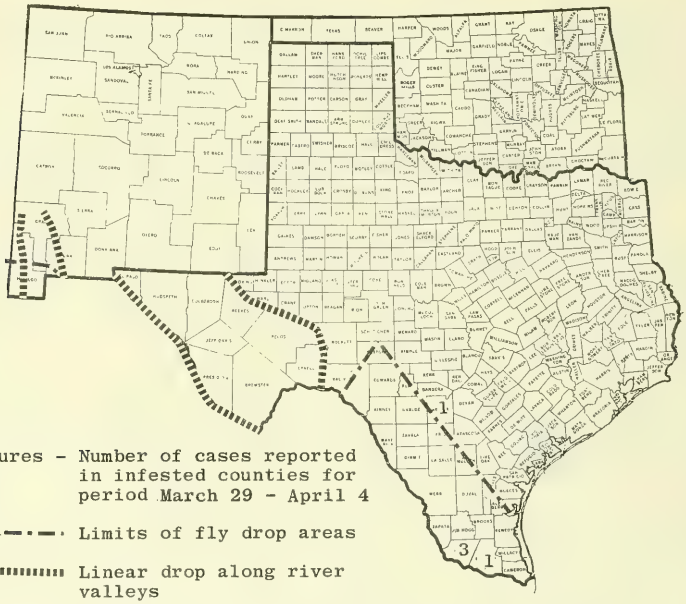
ARBORVITAE LEAF MINER (Argyresthia thuiella) - MARYLAND - Infesting arborvitae at Rockville, Montgomery County. (U. Md., Ent. Dept.).

TWO-STRIPED WALKINGSTICK (Anisomorpha buprestoides) - ALABAMA - Nymphs heavy and feeding on azalea under lath in Mobile County. (Seibels, Mar. 27).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 29-April 4, five screw-worm cases were reported from TEXAS. One case was reported in Hidalgo County, 3 in Starr County and one in Medina County. The Republic of Mexico reported 16 cases of screw-worms, 11 of which were in areas where sterile flies are being released. Two cases were in municipios adjoining southwestern Arizona. Specimens that were not screw-worms were determined as follows: 320 from Texas, 2 from New Mexico, 5 from Oklahoma and 20 from Republic of Mexico. During the week, a total of 93,649,050 sterile screw-worm flies was released, with Texas receiving 20,286,650; New Mexico, 200,000; and Republic of Mexico, 73,162,400. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 29 - April 4

Limits of fly drop areas

Linear drop along river valleys

CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - Larvae have been appearing in backs of young dairy heifers in southern area since February. Animals which pastured in Livingston, Shiawassee and Ingham Counties in 1963 all show infestation with some counts higher than 20 per animal. Some groups of young cattle imported from other States carry infestations. (Dowdy). OKLAHOMA - Adults of H. lineatum quite active in Garvin, Murray, Cotton, Jefferson, Creek and Payne Counties. (Okla. Coop. Sur.).

BLACK BLOW FLY (Phormia regina) - UTAH - Numerous about cattle feeding yards in Ogden-Hooper, Weber-Davis County area. (Knowlton).

AN EYE GNAT (Hippelates collusor) - ARIZONA - Becoming troublesome to field workers in citrus areas of Yuma County. (Ariz. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSOURI - Reported resting on sunny side of buildings in Schuyler County, northeast area. (Houser, Thomas, Wood).

HOUSE FLY (Musca domestica) - UTAH - Active in St. George-Hurricane area of Washington County. (Knowlton). OKLAHOMA - Activity reported around homes and chicken houses in Blaine County. (Okla. Coop. Sur.).

SAND FLIES (Culicoides spp.) - FLORIDA - Causing distress to people in Cedar Key area, Levy County; millions reported present. (O'Berry, Mar. 29).

SHEEP KED (Melophagus ovinus) - OHIO - Moderate populations in home flocks in Morrow and Marion Counties, north central area. Primary danger involves keds moving from shorn ewes into wool of young lambs. (Lyon).

MOSQUITOES - UTAH - Larvae appeared in Salt Lake and Weber County waters. (Graham, Collett, Fronk, Knowlton).

CATTLE LICE - MICHIGAN - Infestations reported from individual herds in Barry, Osceola and Ingham Counties this winter. (Dowdy). UTAH - Some Cache County herds heavily infested; some controls applied this spring. (Knowlton, Tueller). Situation serious in most beef herds in Box Elder County; dipping vats being charged and treating of most herds planned. (Knowlton, Finch). Numerous in some herds in Duchesne-Neola area of Duchesne County and White Rocks-Tridell area of Uintah County. Infesting a number of bulls at Roy, Weber County. (Knowlton). OKLAHOMA - Moderate to heavy infestations reported from several areas throughout State. (Okla. Coop. Sur.). ARKANSAS - Increasing in northwest area; mainly Solenopotes capillatus and Linognathus vituli. (Ark. Ins. Sur.). WYOMING - Light infestations of L. vituli found on cattle in Goshen County; many ranchers applied controls. (Marks).

BED BUG (Cimex lectularius) - OHIO - Found locally in Franklin County. (Delaplane, Triplehorn).

A BLOODSUCKING CONENOSE (Triatoma protracta woodi) - CALIFORNIA - Adults light in feed store in Seeley, Imperial County. (Cal. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - ARKANSAS - Two herds checked in Washington County averaged 18 and 20 ticks per animal by the rump count. Ticks were engorged. (Ark. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (Reticulitermes spp.) - WYOMING - Infested motels in Green River, Sweetwater County, (Fronk) and at Wheatland, Platte County (Robb). MARYLAND - Reproductives and workers noted in floor joist at Beltsville, Prince Georges County. (U. Md., Ent. Dept.). NEW JERSEY - Swarms providing most of household pest inquiries. (Ins.-Dis. Newsltr.).

CLOVER MITE (Bryobia praetiosa) - OHIO - Activity reported during mid-March in Franklin and Stark Counties. (Delaplane, Rings). ARKANSAS - Active in Polk County; first report of season. (Ark. Ins. Sur.). OKLAHOMA - Causing some concern in homes in Sulphur area (south central). (Okla. Coop. Sur.). UTAH - Entering homes at Layton, Davis County; at Ogden, Weber County; and in Salt Lake County. (Knowlton). CALIFORNIA - Heavy adult migration into motel in Livermore, Alameda County; considerable nuisance in suburban Sacramento, Sacramento County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - MICHIGAN - Continues troublesome in some households in southern counties. (Janes). OHIO - Numerous phone calls and office visits have indicated that pest is causing considerable annoyance to homeowners. Adult activity reported in 8 counties within last few weeks. (Delaplane). NEW JERSEY - Continues to bother homeowners. (Ins.-Dis. Newsltr.). VIRGINIA - Adults common locally in James City County, and annoying in Richmond and vicinity. (Tarpley, Bryant, Willey; Mar. 24-26). NORTH CAROLINA - Locally annoying in Northampton County. (Taylor, Robertson).

LARGER YELLOW ANT (Acanthomyops interjectus) - DELAWARE - Some winged individuals emerging in home in New Castle County. (MacCreary).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Causing concern by moving into homes. (Okla. Coop. Sur.). TEXAS - Moving into homes in Andrews County; causing concern. (Millican).

A CERAMBYCID BEETLE (Megacyllene antennatus) - NEVADA - Adults light in home in Las Vegas, Clark County. (Morgan Pest Contr.).

BLACK CARPET BEETLE (Attagenus piceus) - OHIO - Activity recently reported in Putnam, Sandusky, Stark and Crawford Counties. (Delaplane).

POWDER-POST BEETLES - UTAH - Severely damaged floors in 3 homes at Garland, Box Elder County; built 3 years ago by same builder. (Knowlton, Finch).

SPIDER BEETLES - OKLAHOMA - Causing concern in homes in Pontotoc, Coal, Okmulgee and Tulsa Counties. (Okla. Coop. Sur.). DELAWARE - Gibbium psylloides infesting stored products in homes in northern New Castle County. (Burbutis).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - NORTH CAROLINA - Bothersome in home-stored wheat and flour products locally in Swain County. (Smith, Robertson).

WASPS - UTAH - Common on university campus and entering school rooms at Logan, Cache County. (Knowlton).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Large number of larvae noted on bags containing soybeans at Fairland, Montgomery County. (U. Md., Ent. Dept.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Few adults collected at blacklight traps in 2 infested storages in Monroe County early in January. Tubers from these storages disposed of and no adults collected since. (Wells).

CONFUSED FLOUR BEETLE (Tribolium confusum) - ALABAMA - Present in peanut candies in 18 rural stores following complaints in Lee, Tallapoosa and Clay Counties. (Barwood).

BENEFICIAL INSECTS

LADY BEETLES - FLORIDA - Total of 15 larvae and pupae taken in 200 sweeps on alfalfa at Gainesville, Alachua County. (Mead). MISSOURI - Adults of Hippodamia convergens flying on warm days in Boone County. (Houser, Thomas, Wood). KANSAS - Lady beetles, primarily H. convergens, present in trace numbers in most wheat and alfalfa examined in southeast area. (Peters). Occasional lady beetle seen in wheat in Sumner County (south central). (Gates).

A BROWN LACEWING (Micromus sp.) - FLORIDA - Total of 11 adults taken in 200 sweeps in alfalfa at Gainesville, Alachua County. (Mead).

GREEN LACEWINGS - KANSAS - Abundant in wheat in Sumner County (south central). (Gates).

A BIG-EYED BUG (Geocoris punctipes) - FLORIDA - One adult taken in 200 sweeps on blue lupine at Gainesville, Alachua County. (Mead).

A FLOWER BUG (Orius insidiosus) - FLORIDA - Two adults taken in 200 sweeps on blue lupine at Gainesville, Alachua County. (Mead).

DAMSEL BUGS (Nabis spp) - KANSAS - Present in trace numbers in most wheat and alfalfa examined in southeast. (Peters). FLORIDA - Two adults and 3 nymphs taken in 200 sweeps on alfalfa; 5 adults and 4 nymphs in 200 sweeps on blue lupine and 1 nymph taken in 100 sweeps on common rye at Gainesville, Alachua County. (Mead).

MISCELLANEOUS INSECTS

A DERMESTID (Trogoderma parabile) - UTAH - A heavy infestation developed in beetles left in a light trap stored in university laboratory at Logan, Cache County. Det. by J. M. Kingsolver. (Knowlton).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - UTAH - Adults emerged at Logan, Cache County. (Knowlton, Cazier).

A PLUME MOTH (Oidaematophorus sp., probably inquinatus) - COLORADO - Collected at Fort Collins, Larimer County. (Thatcher).

Sticky-board Traps in Arizona - Green peach aphid (Myzus persicae) averaged 22.17 per board; melon aphid (Aphis gossypii) averaged 74.92 per board and beet leafhopper (Circulifer tenellus) averaged 1.33 per board. Twelve boards used. (Ariz. Coop. Sur.).

CORRECTIONS

CEIR 14(12): 217 - SUBTERRANEAN TERMITES - COLORADO - Specimens from Denver not Reticulitermes sp. Determined as Zootermopsis angusticollis by R. R. Lechleitner. Specimens of Z. angusticollis collected from shipment of lumber from the Northwest into Denver; all were apterous nymphs. (Ins. Det. Comm.).

(Weather continued from page 308)

normal over most of the rest of the Nation. A few locations, mostly in the Great Lakes region, averaged 10° or more below normal. A few locations in Montana and in central Texas averaged 6° or more above normal. The heaviest rains fell over Missouri, Arkansas, Mississippi, and portions of nearby States. One of the largest totals, 10.27 inches, fell at Enterprise, Mississippi. Rainfall totals of less than 0.5 inch were common over most of the western third of the Nation, over parts of the Northern Border States, and along the Gulf and Atlantic coasts. (Summary supplied by U.S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 3/28-4/3																	7							Misc.
FLORIDA																								
Gainesville 3/31			BL						1															
GEORGIA																								
Tifton 3/26-4/1			BL							0	1								0	0				
MISSISSIPPI																								
Stoneville 3/28-4/3	27-78	0.02"	MV				3										17			16				
Stoneville 3/28-4/3	27-78	0.02"	BL	2			2										17	3		15				
SOUTH CAROLINA																								
Charleston 3/23-29	38-71	2.23"	BL	0			0		6	0	0	0					0	0	0	0	8		0	
Charleston 3/30-4/5	27-77	.08"	BL	6			1		7	0	1	0					0	2	0	0	27		0	
TEXAS																								
Waco 3/28-4/3			BL	0			1		0		1	0					20	3			26		0	
Brownsville 3/26-4/1			6BL	42			114		911		229	30		10231			289	34	38	12	235		36	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

Analysis of Insect and Mite Infestations Found in Produce from the United States Examined in Ports in Great Britain in 1963 1/

This analysis is arranged in three sections. The origin of shipments from the United States is indicated as follows: W - all west coast ports; S - all gulf ports and east ports up to and including Norfolk, Virginia; N - all ports from Norfolk, Virginia, northwards, and including ports of the Lake States.

The information is based on inspections made in the ships during discharge or immediately afterwards on quays or in transit sheds so that there is no risk of recording insects which have invaded the goods after arrival. Insects are either identified by the inspectors or, in case of doubt, by experts in the Ministry of Agriculture, Fisheries and Food, or in the Department of Agriculture and Fisheries for Scotland, or at the British Museum of Natural History.

As in 1962, produce from southern ports had the greatest incidence of infestation, particularly rice and rice bran. A number of parcels of rice had to be fumigated on arrival to control partly or fully grown larvae of almond moth, Cadra cautella (Walk.). The infestation in many cases appeared to have been acquired during transit storage after fumigation at the mill and before shipment, as there was no evidence of cross or residual infestation on the ships. Infestations were concentrated mainly in June-October arrivals. Rice bran also continued to show appreciable infestation and is probably a source of cross-infestation during preshipment storage.

Trouble was also experienced in April with emergence of pea weevil, Bruchus pisorum (L.), from parcels of Alaska peas stored inland in Britain after import during the winter for canning and processing. This appeared to be due to failure of preshipment fumigation carried out in boxcars using chloropicrin under very low temperature conditions.

U.S.A. (W)

	Mixed Dried Fruit	Raisins	Hides	Clear Commodities	Total
Light	3	1	-	-	4
Moderate	1	-	1	-	2
Heavy	-	-	-	-	0
Infested	4	1	1	-	6
Clear	14	30	2	111	157
TOTAL	18	31	3	111	163
Carpophilus hemipterus (L.)	1	-	-	-	1
Dermestes maculatus Deg.	-	-	1	-	1
Necrobia rufipes (Deg.)	1	-	-	-	1
Plodia interpunctella (Hubn.)	3	1	-	-	4
Total species and species groups	3	1	1	-	4

No infestation was detected in barley (1 cargo), oats (3), rice (6), beans (19), peas (33), rapeseed (1), dates (4), prunes (27), currants (2), almonds (2), grass seed (9), vegetable seeds (3), and animal feed pellets (1).

1/ Submitted by J. A. Freeman, Chief Entomologist, Ministry of Agriculture, Fisheries and Food, Infestation Control Laboratory, Block B, Hook Rise, Tolworth, Surrey, England.

U.S.A. (S)

	Maize (corn)	Rice	Sorghum (Milo)	Flour	Rice Bran	Feather Meal	Clear Commodities	Total
Light	7	10	2	1	5	1	-	26
Moderate	-	4	-	-	1	-	-	5
Heavy	-	1	-	-	1	-	-	2
Infested	7	15	2	1	7	1	-	33
Clear	27	54	7	7	5	-	9	109
TOTAL	34	69	9	8	12	1	9	142
Carpophilus sp.	1	-	1	-	1	-	-	3
Dermestes frischii Kugelann	-	-	-	-	-	1	-	1
Lasioderma serricorne (F.)	-	1	-	-	-	-	-	1
Oryzaephilus surinamensis (L.)	-	1	-	-	-	-	-	1
Sitophilus oryzae (L.)	1	1	1	-	-	-	-	3
Tribolium castaneum (Herbst)	-	4	1	1	3	-	-	9
Typhaea stercorea (L.)	-	1	-	-	-	-	-	1
Cadra cautella (Walk.)	4	10	-	-	5	-	-	19
Plodia interpunctella (Hubn)	1	-	-	-	-	-	-	1
Total species or species groups.	4	6	3	1	3	1	-	9

No infestation was found on wheat (4), soybeans (3), soybean meal (1) or hides (1).

U.S.A. (N)

No infestation was found on wheat (3), oats (1), rice (2), flour (4), starch (1), pea-beans (1), beans (6), soybeans (2) and feather meal (1).

	Maize (corn)	Millet	Soybean Meal	Clear Commodities	Total
Light	5	1	1	-	7
Moderate	-	-	-	-	-
Heavy	-	-	-	-	-
Infested	5	1	1	-	7
Clear	36	2	4	21	63
TOTAL	41	3	5	21	70
Sitophilus granarius (L.)	1	-	-	-	1
Sitophilus zeamais (Mots.)	2	-	-	-	2
Tribolium castaneum (Herbst)	1	1	1	-	3
Typhaea stercorea (L.)	1	-	-	-	1
Hofmannophila pseudospretella (Staint.)	1	-	-	-	1
Plodia interpunctella (Hubn.)	1	-	-	-	1
Sitotroga cerealella (Oliv.)	1	-	-	-	1
Total species and species groups	7	1	1	-	7

In addition one cargo of Irak dates refused entry by Food and Drug Administration in New York and re-exported to United Kingdom was found infested by Oryzaephilus mercator (Fauv.) and O. surinamensis (L.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

(Continued from page 305)

FOREST INSECTS [1/]

The largest campaigns in more than a decade were undertaken in the United States in 1963 to suppress destructive forest insects. As a result, the scope and severity of infestations throughout the Nation were greatly reduced from levels of the past few years. Although there were many new outbreaks of BARK BEETLES, DEFOLIATORS and other pests in 1963, few of them compared with the wide-scale epidemics of 1962. An improved pattern of precipitation in much of the West and South and an increase in natural factors that hold some species in check brighten the overall outlook for forest insect conditions expected in 1964. The most significant infestations in the various sections of the country, together with a comparison of the status of those persisting from prior years, and a discussion of major action programs utilized in suppression in 1963 are highlighted in the paragraphs that follow. Needs for suppression in 1964 and planned projects are summarized in the appended table.

The Situation in the Western States

Forest insect conditions in CALIFORNIA were variable. A material decline occurred in the 1961-62 epidemic of WESTERN PINE BEETLE (Dendroctonus brevicomis) along the lower front of the Sierra Nevada. The area of infestation dropped from more than a million acres to less than 750,000. The decline in number of infested trees was estimated at more than 75 percent. The decline in area and severity of these infestations is attributed to the widespread salvage and chemical treatment of infested trees and to above-normal precipitation during the past 2 years. The long-standing epidemic of the FIR ENGRAVER (Scolytus ventralis) abated somewhat, but significant losses continued.

Populations of the SPRUCE BUDWORM (Choristoneura fumiferana) declined sharply in the Warner Mountains, Modoc County, and losses caused by the JEFFREY PINE BEETLE (Dendroctonus jeffreyi) remained low in most areas of the State. In contrast, the MOUNTAIN PINE BEETLE (Dendroctonus monticolae) continued its heavy toll of old-and young-growth sugar pine; the DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) and the BALSAM-FIR SAWFLY (Neodiprion abietis) increased substantially in white fir; and, a 7,500-acre PANDORA MOTH (Coloradia pandora) outbreak occurred in stands of Jeffrey pine. Forest insect suppression was directed primarily against bark beetles in the Mother Lode area and in forest recreational areas in the central and southern part of the State.

On an overall basis, insect infestations in the forests of OREGON and WASHINGTON were less serious than those in 1962. The level of losses caused by BARK BEETLES in ponderosa pine stands was less, due primarily to an increase in the tempo of logging in many affected areas. Concerted action by owners and managers of forest lands in rapidly salvaging the large volume of 1962 windthrown timber in the coastal forests of both States materially lessened the likelihood of future serious bark beetle epidemics.

[1/] This summary is the introduction or highlight section of the "Forest Insect Conditions in the United States - 1963" which was compiled and published by the Division of Forest Insect Research, Forest Service, U. S. Department of Agriculture. Copies of the complete annual summary are available upon request from the Regional Forester in your area. Addresses of the regional offices may be found on page 326 of this issue of the CEIR.

Direct action to suppress the WESTERN HEMLOCK LOOPER (Lambdina fiscellaria lugubrosa) on 67,000 acres in the vicinity of Naselle, Washington, prevented wholesale tree killing in that area and eliminated the threat posed by outbreak populations to adjacent stands. The EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) was apparently eradicated from Spokane, Washington, and Salem, Oregon, and no new infestations, except in a nursery in Portland, Oregon, were found outside the Puget Sound Containment Zone. Direct control of the MOUNTAIN PINE BEETLE was continued at Crater Lake National Park, Oregon.

Losses of forest resources attributable to several insect pests continued heavy throughout the Intermountain States. Bark beetles remained the worst offenders, but defoliators also were quite troublesome. The long-standing epidemics of MOUNTAIN PINE BEETLE in stands of lodgepole pine on the Wasatch National Forest and at other locations in UTAH and WYOMING, have been largely checked by sustained large-scale suppression programs. Mountain pine beetle infestations on the Teton and Targhee National Forests and Grand Teton National Park, however, continued unabated despite suppression efforts, and large increases in populations developed anew in stands of lodgepole pine in parts of Sublette County, Wyoming, and Bingham County, IDAHO. For the first time in many years, ENGELMANN SPRUCE BEETLE (Dendroctonus engelmanni) infestations were reduced to endemic levels. Damage caused by the DOUGLAS-FIR BEETLE (D. pseudotsugae) also was less than at any time in the past decade. Outbreaks of TUSSOCK MOTHS (Hemerocampa spp.) were widespread on a variety of host species in southern IDAHO and NEVADA, and localized infestations of other miscellaneous species occurred at scattered locations throughout the Intermountain States.

The SPRUCE BUDWORM epidemic in IDAHO continued and the gross area of defoliation amounted to approximately 1.6 million acres. A start was made to suppress the budworm in 1963 by aerial spraying 200,000 acres. It is planned to spray an additional one-half million acres in 1964, and if needed, to treat the residual infestations in 1965.

Foliage feeders were the most troublesome insects in the Northern Rocky Mountains. The wide-scale infestations of spruce budworm continued in MONTANA and north Idaho and light to severe defoliation of host-type trees occurred again on a gross area of approximately 2.25 million acres. Aerial spraying for control of the budworm was completed successfully on 190,000 acres of heavily infested timber in the Bitterroot Mountains, and it is planned to treat other severely affected stands in 1964.

The LARCH CASEBEARER (Coleophora laricella), a relative newcomer to the Northern Rockies, continued its spread in western MONTANA, north IDAHO and northeastern WASHINGTON. Effective parasites of the casebearer have become established in Idaho and efforts will be increased to hasten their establishment throughout the general area of infestations. The DOUGLAS-FIR TUSSOCK MOTH showed signs of increasing in north IDAHO and outbreaks there are a possibility in the future. Chronic infestations of MOUNTAIN PINE BEETLE continued in stands of white pine on the Clearwater National Forest, IDAHO, but other bark beetles were less of a problem than for the past several years.

The BLACK HILLS BEETLE (Dendroctonus ponderosae) was the dominant pest in the Central Rocky Mountains and in the Black Hills of SOUTH DAKOTA and WYOMING. In the latter area, a large-scale epidemic, the worst in many years, destroyed thousands of ponderosa pines. The virulence of the epidemic prompted an all-out campaign by landowners in suppression and containment during the fall of 1963, and control of the epidemic is expected by mid-year in 1964. Elsewhere in the Central Rockies, Black Hills beetle infestations were largely contained by direct control action. The SPRUCE BUDWORM declined substantially from natural causes in most areas in COLORADO, and for the first time in many years ENGELMANN SPRUCE BEETLE infestations also were largely endemic.

Cultural, direct, and natural controls resulted in less damage and loss by insects to forest values in the Southwest than at any time during the past 5 years.

Infestations of the ENGELMANN SPRUCE BEETLE in northern NEW MEXICO have been reduced materially by sustained action in selling infested trees and burning infested slash and cull material. The 2-year control program directed against the 1.1 million-acre epidemic of SPRUCE BUDWORM greatly reduced the area of infestations. However, two new infestation centers totaling 100,000 acres were discovered in southern NEW MEXICO in 1963, and some 350,000 acres outside of the control zone in northeast New Mexico harbor outbreak populations. Direct control of the spruce budworm is not planned in 1964.

The Situation in the North Central and Eastern States

A variable pattern of infestations characterized forest insect conditions in the Lake, Central and Northeastern States. Natural factors reduced outbreak populations of the SADDLED PROMINENT (Heterocampa guttivitta), a PITCH PINE LOOPER (Lambdina athasaria pellucidaria), LINDEN LOOPER (Erannis tiliaria) and FOREST TENT CATERPILLAR (Malacosoma disstria) in the Northeastern States, and the more commonly important defoliators were less abundant in the Lake and Central States, largely because of natural control factors. SPRING CANKERWORM (Paleacrita vernata) and FALL CANKERWORM (Alsophila pometaria) defoliated oaks and hickories at many locations, and the GYPSY MOTH (Porthetria dispar) was a problem in areas of New England, NEW YORK, NEW JERSEY, and PENNSYLVANIA.

Aerial spraying by the States and the Agricultural Research Service of the USDA for control of gypsy moth totaled 342,400 acres. The SPRUCE BUDWORM epidemic in MAINE was controlled on 475,000 acres by spraying, and only 25,000 additional acres will need treatment in 1964. The intensity of SPRUCE BUDWORM infestations in northern MINNESOTA remained static, with no further spread to the south or east. Direct control of the budworm in Minnesota was limited to heavily infested areas in high-value recreational sites.

The BEECH SCALE (Cryptococcus fagi) and the associated Nectria fungus continued as serious threats to mature beech stands in MAINE, NEW HAMPSHIRE, VERMONT, and NEW YORK. The WHITE PINE WEEVIL (Pissodes strobi), BALSAM WOOLLY APHID (Chermes piceae), and a RED PINE SCALE (Matsucoccus resinosa) remained at damaging levels in the Northeast. Similarly, SARATOGA SPITTLEBUG (Aphrophora saratogensis), EUROPEAN PINE SHOOT MOTH and EUROPEAN PINE SAWFLY (Neodiprion sertifer) were destructive in local areas in the Central and Lake States.

The Situation in the South and Southeast

In the South and Southeast, infestations of all but a few forest insects were greatly reduced from previous years. The decline of SOUTHERN PINE BEETLE (Dendroctonus frontalis) populations, first observed in east TEXAS in 1962, continued to decline there and infestations in most other affected areas in ALABAMA, MISSISSIPPI, GEORGIA, NORTH CAROLINA and SOUTH CAROLINA also were brought under control in 1963. At year's end, all but a few southern pine beetle infestations were on the wane, and no serious tree killing over extensive areas is expected in 1964.

The long-standing outbreak of ELM SPANWORM (Ennomos subsignarius) in the southern Appalachian Mountains began a natural decline in 1963, and a continued decrease in populations is predicted for 1964. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) activity continued at previous high levels with the greatest populations in the Gulf States area. Direct control of this beetle was required in all affected areas.

Needed Forest Insect Suppression Projects in the U.S. — Calendar Year 1964

Suppression Project	Location of Project	No. of acres in need of spraying (approximate)	No. of trees needing treatment (approximate)
Spruce budworm	Montana, Idaho Minnesota, and Maine	840,000	
Jack-pine budworm	Michigan	20,000	
Pine tussock moth	Wisconsin	17,000	
Mountain pine beetle	Idaho, Utah, Wyoming		500,000
Black Hills beetle	Colorado, Wyoming, South Dakota		200,000
Engelmann spruce beetle	Colorado, Wyoming		50,000
Western pine beetle	California		100,000
Southern pine beetle	Southern and South-eastern States		200,000
Black turpentine beetle	" "		500,000
Miscellaneous insects	Nationwide	50,000	10,000

REGIONAL OFFICE ADDRESSES

U. S. FOREST SERVICE

Region	
1	U. S. Forest Service Federal Building Missoula, Montana 59801
2	U. S. Forest Service Federal Center Building 85 Denver, Colorado 80225
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UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 16 April 17, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Early instars of ALFALFA WEEVIL appearing in Delaware and Maryland; larvae continue to damage alfalfa in several sections of Virginia. Adults active in Davis and Salt Lake Counties, Utah. Some moderate to severe damage by CLOVER LEAF WEEVIL expected in western side of Illinois. CLOVER HEAD WEEVIL destroyed 10-33 percent of leaf surface of crimson clover locally in Montgomery County, Alabama. (p. 329). Larvae of another weevil, Hypera brunneipennis, averaged 50 per 100 sweeps in alfalfa in area of Yuma County and 30-40 per 100 sweeps in Maricopa County, Arizona. SPOTTED ALFALFA APHID and PEA APHID counts generally low on alfalfa in States where species are active. However, rapid buildup of spotted alfalfa aphid recorded in areas of New Mexico and California. (p. 330). GREEN-BUG infestations becoming general throughout north central and northwest Oklahoma with considerable control being initiated in small grains. Pest scarce in central and western districts of Kansas. (p. 331). BROWN WHEAT MITE continues moderate to heavy in scattered locations in Oklahoma, killing some barley. Heavy, widespread populations on wheat in Runnels County, Texas, and moderate locally on wheat and barley in Motley County, same State. Brown wheat mite ranged zero to moderate in central and western Kansas, with some damage apparent. (p. 332).

Fourth infestation of KHAPRA BEETLE found in Yuma County, Arizona. (p. 340).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

ALFALFA LOOPER adults in Marion County, Oregon, on March 30; CORN EARWORM moth on April 2 in southwest Arkansas; APPLE GRAIN APHID hatching in Ohio; PEAR PSYLLA adults in Massachusetts and Connecticut; PINK BOLLWORM moths in experimental cages on March 30 at Safford, Arizona; PINE BARK APHID eggs in southwest Ohio; a pine sawfly (Neodiprion pratti pratti) hatching March 18 in Vance and Granville Counties, North Carolina; WESTERN TENT CATERPILLAR hatching week of March 23 in Washington County, Oregon; LINDEN LOOPER adults in Connecticut; and SALT-MARSH MOSQUITO (Aedes sollicitans) larvae in Kent County, Delaware.

DETECTION

A DRYWOOD TERMITE (Cryptotermes sp.) - Genus recorded in Delaware for the first time. (p. 340). A COLYDIID BEETLE (Murmidius ovalis) recorded in Nebraska for the first time. (p. 340).

SPECIAL REPORTS

Beet Leafhopper Survey, Texas and New Mexico. (p. 334). Counts per 100 square feet were 11 in Texas and 32 in New Mexico. (p. 334).

Status of the Screw-worm in the Southwest. (p. 338). Seven screw-worm cases reported from Texas; last year during this period, 83 cases reported in Texas and New Mexico.

Summary of Insect Conditions in the United States - 1963

Shade Tree Insects (p. 343).
Ornamental Insects (p. 353).

Reports in this issue are for week ending April 10 unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 13

Rain and drizzle fell over much of the Nation east of the Mississippi River on Monday, April 6. Snow fell over the northern Great Plains and the northern and central Rocky Mountains. Eight inches of snow blanketed the ground at Minneapolis, Minnesota, as winds reached 50 m.p.h. Arctic air poured into the northern Great Plains. Heavy rains fell in the South. Meridian, Mississippi, received more than 6 inches in 24 hours. Hail as large as golf balls fell at Columbus, Mississippi. Twisters hit Alabama and Georgia and heavy thunderstorms swept the Carolinas and middle Atlantic coast. By midweek, the storm had pushed its way into the Atlantic and fair weather prevailed over most of the Nation. As the weekend approached, a high pressure area was centered over Arkansas, Louisiana, and Mississippi. Fair weather prevailed over the Far Southwest and from the Rocky Mountains to the Atlantic Ocean. A cold front was pushing into the Far Northwest followed by cloudiness and generally light precipitation.

By early Sunday morning, a storm which had developed along the eastern slopes of the central Rocky Mountains, intensified. Strong winds swept the Great Plains. Cold temperatures pushed southward on the western side of the storm. Warm, moist air flowed northward ahead of the storm. By Sunday noon, clouds covered most of the Mississippi River Valley. Numerous tornadoes and hailstorms occurred in the afternoon. One tornado cut a swath 1/4 mile wide through Leavenworth, Kansas, causing extensive property damage. At Yorktown, Iowa, a tornado killed 1 person, injured 6, and destroyed half of the buildings in the town. A tornado 4.5 miles south of Garnet, Kansas, killed 3 persons, injured 10, and destroyed a farm home. One person was killed and 4 were injured by a tornado at Pleasant Hill, Missouri. Other tornadoes struck Weston, Lamonte, Warrensburg, and Maryville, Missouri. Although tornado activity diminished Sunday night, the deep Low moved toward the Great Lakes on Monday. Strong winds with speeds of 30 to 50 m.p.h. and gusts from 70 to 80 m.p.h. continued from the Dakotas and Nebraska to the Great Lakes. Blowing snow reduced the visibility over the northern Great Plains. The strong winds caused extensive damage to trees and buildings. High winds caused dust-storms over the Texas Panhandle and the western half of Oklahoma. Besides causing soil erosion, they caused extensive damage to powerlines and other property.

Temperatures averaged slightly above normal over the interior valleys of California, northeastern Washington, the Dakotas and eastward to western New York and western Pennsylvania and below normal over most of the rest of the Nation. Temperature departures ranged from -7° at Winslow, Arizona, and Grand Junction, Colorado, to +5° near Lakes Huron, Erie, and Ontario. Over much of the Central and East, mild weather prevailed at the beginning and end of the week, with cooler temperatures at midweek.

Rainfall totals were generally less than 0.50 inch over most of the Nation from the Pacific Ocean eastward to the Great Lakes and Ohio River in the North and to the Mississippi River in the South, also over most of Florida, except the northern counties. Totals exceeding 2 inches were common from Mississippi to the Carolinas. Some stations in that area received more than 5 inches and a few locations in Georgia received more than 8 inches. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Examination of alfalfa stems in Berkshire, Hampden and Hampshire Counties revealed 0-11 percent viable eggs; most eggs apparently hatched last fall. (Shaw, Mar. 24-Apr. 2). DELAWARE - Early instars present in eastern Sussex County alfalfa. (Burbutis). MARYLAND - First larvae of season noted on alfalfa April 6 at Snow Hill, Worcester County. Eggs about to hatch noted on alfalfa in Caroline and Montgomery Counties. (U. Md., Ent. Dept.). VIRGINIA - Larvae present in all parts of Franklin County; as many as 5 per bud. (Tucker, Mar. 28). Some larvae noted in field of alfalfa in Roanoke County not treated in fall of 1963. (Allen, Apr. 3). Larvae averaged 16 per square-foot pan count in field in Amherst County. (Pienkowski). Larvae found in every alfalfa plant checked in several counties, except one field in Albemarle County. Good number of dead larvae encountered; apparently killed by cold weather, as no evidence of control. All larval stages present in most fields checked; occasional cocoon encountered. Larvae averaged 70 per 10 tips in Appomattox County, alfalfa 3-4 inches high; averaged 96 per 10 tips in Buckingham County, alfalfa 4-5 inches high; averaged 82 per 10 tips in Cumberland County, alfalfa 4-5 inches high; averaged 34 per 10 tips in Goochland County and 34 per 10 tips in Albemarle County. In a Powhatan County field with alfalfa 6-7 inches high, larvae averaged 168 per 10 tips, with egg masses in 10 of 25 tips checked; eggs ranged 6-15 per mass. Larvae averaged 134 per 10 tips in another Powhatan County field, alfalfa same height; eggs present in 2 of 25 tips checked, and 7 others showed oviposition scars, indicating eggs already hatched. Larvae averaged 123 per 10 tips in an Amelia County field, alfalfa 6-9 inches high, eggs present in 5 of 25 tips checked; larvae averaged 176 per 10 tips in another field in same county, eggs in 2 of 10 tips checked. In general, eggs not found at any particular plant height, being distributed from near ground level to near tips. About 50 percent of eggs encountered yellow in color, indicating recent deposition; others much darker and presumably older. (Tarpley). ALABAMA - Few adults taken in vetch in Montgomery and Macon Counties. Light larval population appearing in 1-acre field in Cleburne County treated with recommended chemicals in fall of 1963. (McQueen). COLORADO - Surveys to April 9 failed to reveal overwintering adults in Weld and Larimer Counties. (Ext. Serv.; Jenkins, Hantsbarger). WYOMING - No activity noted in alfalfa surveyed in Washakie County; approximately 0.25 to 0.50 inch green growth present. (Lowry, Patch, Marks). UTAH - Adults active in alfalfa in Davis and Salt Lake Counties. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Larvae vary from first to third instars in southern half of State. Populations in clover and alfalfa in east, east-southeast and southeast districts ranged 3-16 per square foot, with district averages as follows: East 4, east-southeast 7.8 and southeast 9.5. These populations indicate noneconomic to light damage this year; however, populations much heavier on western side of State, indicating some moderate to severe damage could be expected. Populations per square foot, by district, as follows: West 8-48 (average 30), west-southwest 8-56 (average 35.6) and southwest 3-32 (average 16.2). (Ill. Ins. Rpt.). MISSOURI - Ranged 2-3 per plant in southwest; approximately two-thirds showed signs of fungal infection. (Houser, Thomas, Wood). CALIFORNIA - Light on alfalfa in Bakersfield, Kern County. (Cal. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Larvae and adults very light on crimson and white clovers in Montgomery and Macon Counties. (McQueen). ILLINOIS - Adults noted in alfalfa in extreme southern area of State. (Ill. Ins. Rpt.).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Larvae extremely heavy and damaging crimson clover on large farm in Montgomery County; 10-25 first, second and third-stage larvae and 0-3 adults per sweep. Destroying 10-33 percent of leaf surface prior to bloom; may be due to climatic conditions which resulted in early egg laying and late growth and blooming of clover. Controls being applied to 100-acre field on this farm for seed production. (Dismukes et al.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 50 per 100 sweeps in alfalfa in Roll-Wellton-Dome area of Yuma County. Averaged 30-35 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - TEXAS - Light counts noted in Kaufman County alfalfa fields. (Turney). ILLINOIS - Larvae noted on alfalfa in extreme southern areas. (Ill. Ins. Rpt.).

ALFALFA LOOPER (Autographa californica) - OREGON - Small numbers began appearing in blacklight trap at Aumsville, Marion County, on March 30. (Larson). CALIFORNIA - Light in alfalfa plantings in Rosendale, Kern County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Eggs brought into laboratory from alfalfa stems collected April 2 at Brodhead, Green County, hatched by April 6; temperature constant at 75°F. If temperature trends continue, some hatching expected in field within next 2 weeks. No hatching observed in field April 8. (Wis. Ins. Sur.). ILLINOIS - None found in extreme southern area, including Hardin County, which was heavily populated late last fall. (Ill. Ins. Rpt.). KANSAS - Counts in alfalfa in south central and southwestern areas ranged 0-10 per 100 sweeps; averaged less than 1 per sweep. (Peters). ARKANSAS - Surveys negative in Miller and Conway Counties. (Ark. Ins. Sur.). OKLAHOMA - Continues low throughout most areas, with heavy infestations reported in Sequoyah County. (Okla.Coop.Sur.). COLORADO - None found to April 9 in Otero County alfalfa. (Schweissing). NEW MEXICO - Warmer weather appears to be an important factor in rapid buildup in number of alfalfa fields in Chaves and Eddy Counties. Few fields treated. (N.M. Coop. Rpt.). ARIZONA - Light to medium on most alfalfa in Graham, Pinal, Maricopa and Yuma Counties. Some increases noted in Somerton area, Yuma County. (Ariz. Coop. Sur.). NEVADA - Generally light in several alfalfa hay fields in Moapa Valley, Clark County; counts up to 5 per sweep. (Bechtel). Populations very light in Virgin Valley. (Hilbig). CALIFORNIA - Some infestations occurred on Sonora and Moapa varieties of alfalfa. These varieties have about equal resistance levels to this aphid and there are several types and levels of resistance within both varieties. Climatic conditions have been excellent for build up in large numbers; however, conditions have been unfavorable for natural enemies. Beneficial insect species and fungus organisms absent or at too low levels to hold aphids in check. There has been an increase in acreage of nonresistant alfalfa varieties in Imperial Valley in past few years. Aphid populations build up to tremendous numbers on these varieties and move to susceptible plants of resistant varieties. Some fields of Sonora and Moapa varieties may require controls this season. This is an unusual situation, one which may not occur again for many years, if ever. (Cal. Coop. Rpt., Dowling).

PEA APHID (Acyrthosiphon pisum) - DELAWARE - Averaged 2 per 10 sweeps on alfalfa in eastern Sussex County. (Burbutis). MARYLAND - Light on alfalfa at Snow Hill, Worcester County, April 6. (U. Md., Ent. Dept.). WISCONSIN - Newly emerged nymphs (not over 24 hours old) observed as fairly common between folded leaflets of new growth alfalfa just emerging from soil in Brodhead area, Green County. (Wis. Ins. Sur.). ILLINOIS - Ranged 0-40 (averaged 21.5) per 100 sweeps in 5 to 6-inch alfalfa in extreme southern area. None found farther north where alfalfa and clover ranged 1-3 inches in height. (Ill. Ins. Rpt.). MISSOURI - Surveys negative in southwest area. (Houser, Thomas, Wood). KANSAS - Ranged from 100 to over 1,400 per 100 sweeps in alfalfa in south central and southwestern areas. (Peters). OKLAHOMA - Counts continue at low levels in alfalfa throughout state. (Okla. Coop. Sur.). ARKANSAS - Becoming heavy on alfalfa in southwest; ranged 30-40 per sweep on this host in Miller County. Economic numbers noted on alfalfa in Lafayette County. Surveys negative on Conway County alfalfa (central). (Ark. Ins. Sur.). TEXAS - Heavy, localized populations noted on singletary peas in Washington County. (Mitchell). Very light populations noted on vetch in Kaufman County. (Turney). COLORADO - None found in alfalfa in Otero County to April 9. (Schweissing). ARIZONA - Light to medium on alfalfa in Graham, Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.). NEVADA - Extremely light in Moapa Valley, Clark County. (Bechtel).

COWPEA APHID (Aphis craccivora) - FLORIDA - Counts 300+ per plant on southern peas at Bradenton, Manatee County. (Kelsheimer, Apr. 1).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Single specimen observed in Gallatin County; none observed elsewhere in southern half of State. (Ill. Ins. Rpt.).

APHIDS - ALABAMA - Heavy on crimson clover in Montgomery and Macon Counties; 25-100 per sweep. (McQueen).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - WISCONSIN - Late-stage nymphs and adults noted in alfalfa in Rock and Green Counties. (Wis. Ins. Sur.). UTAH - This species and Dikraneura carneola active on roadsides and in alfalfa fields in Salt Lake and Utah Counties. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - WISCONSIN - Adults present in wheat and rye fields in southern area. (Wis. Ins. Sur.). ILLINOIS - Adults noted in alfalfa in extreme southern area. (Ill. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - ARIZONA - No noticeable change in populations noted in alfalfa. Counts as high as 280 per 100 sweeps noted in an experimental check plot of alfalfa in Yuma County. Slight increases noted in safflower in Maricopa County. (Ariz. Coop. Sur.). UTAH - Lygus spp., 85 percent L. elisus, present in alfalfa fields and grass areas in Utah and Salt Lake Counties. (Knowlton).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Remains at noneconomic levels on small grain fields in eastern counties. Heaviest, spotted infestations averaged 10-20 per linear foot. (N.M. Coop. Rpt.). TEXAS - Populations ranged 100-300 per foot in few isolated wheat fields in Potter, Armstrong, Randall, Deaf Smith and Collingsworth Counties; however, with size of wheat, there is doubt much damage will occur. Averaged less than 15 per foot in Sherman and Moore Counties. (Daniels, Mar. 31). Light locally on wheat in Motley County; average less than 100 per linear foot. (Pallmeyer). OKLAHOMA - Infestations becoming general throughout north central and northwest areas with considerable control being initiated. Reproduction continues, with large number of small aphids on plants. Remains noneconomic to light in west central, southwest and northeast areas. (Okla. Coop. Sur.). KANSAS - Scarce in wheat fields in central and western districts. (Peters).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Populations continue light in northeast, west central and southwest areas. Moderate counts reported in Blaine County. (Okla. Coop. Sur.). KANSAS - Ranged 0-160 per 100 sweeps in 6 to 8-inch high wheat in south central area. (Peters). FLORIDA - Infesting rye at 2 locations at Reddick, Marion County. (Adkins, Apr. 3).

A LEAFHOPPER (Draeculacephala portola portola) - FLORIDA - Adults infesting 7 percent of 500 untreated corn plants at Belle Glade, Palm Beach County. (Harris).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering borers first noted April 9 in central Kent County. Estimated percent reduction of overwintered borers, by county, as follows: New Castle 52, Kent 26 and Sussex 54. State average of 45 borers per 100 stalks this spring not as low as 31 per 100 stalks in spring of 1963. (Burbutis). MINNESOTA - Percent overwintering mortality, by district, averaged as follows: Central 14, west central 27, southwest 13, south central 9 and southeast 16. State average was 16 percent; slightly less than 1963 average of 17 percent. (Minn. Ins. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Overwintering survival of larvae in southwest approximately 5 percent. (Houser, Thomas, Wood).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Trace numbers noted in irrigated wheat in Otero County. (Schweissing). KANSAS - Occasional larvae observed in wheat in central and western areas; high counts less than 2 per foot of row. Only occasional damaged leaf observed. (Peters).

CORN EARWORM (Heliothis zea) - ARKANSAS - Single moth collected April 2 in light trap at Hope, Hempstead County (southwest), is first record of season; 7 adults taken in this trap April 2-8. Single moth collected in sweep net from crimson clover April 3 in Bradley County (south central). (Ark. Ins. Sur.; Whitcomb).

THRIPS - NEW MEXICO - Unspecified species appear to be building up in most alfalfa fields in Chaves and Eddy Counties. (N.M. Coop. Rpt.). NEVADA - Frankliniella sp. very heavy on alfalfa in Moapa Valley, Clark County. (Bechtel).

HESSIAN FLY (Phytophaga destructor) - KANSAS - "Flaxseed" examination indicates emergence will not begin for several more days in Riley County, northeast. (Somsen, Burkhardt).

SEED-CORN MAGGOT (Hylemya platura) - DELAWARE - Adults abundant in cover crops throughout Sussex County. (Burbutis).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Continues moderate to heavy in scattered locations in Kiowa, Greer and Harmon Counties, killing some barley. Large numbers of summer eggs present in these areas and populations expected to decline. Moderate counts reported in Washita and Blaine Counties (west central). (Okla. Coop. Sur.). TEXAS - Populations about 2,000 per foot (Henderson fork measure) in wheat fields in localized area of Potter County; little damage apparent. (Daniels, March 31). Heavy, widespread populations reported on wheat in Runnels County. (Texas Coop. Rpt.). Moderate, local infestations reported on wheat and barley in Motley County. (Pallmeyer). COLORADO - None noted in surveys of wheat and barley in Otero County. (Schweissing). KANSAS - Ranged zero to moderate in central and western counties. Several fields, particularly in Comanche (south central) and Clark (southwest) Counties, had heavier populations with wheat plants showing damage. Low soil moisture aggravating plant appearance; improved growing conditions should reduce problem. (DePew, Peters).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Examination of 10 wheat samples collected April 1-2 in southeast showed one sample heavily infested. (Somsen, Peters).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to moderate on small grains in Runnels and Coleman Counties. (Hamman).

CAROLINA GRASSHOPPER (Dissosteria carolina) - COLORADO - Second-stage nymphs active in lawns at Ft. Collins, Larimer County. Det. by T. O. Thatcher. (Colo. Ins. Det. Comm.).

A CHINCH BUG (Blissus sp.) - TEXAS - Light, widespread infestations noted on St. Augustine lawns in Jefferson County. (Crocker).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Infesting peach, plum and other fruit trees over wide portion of State. (Texas Coop. Rpt.).

A PSYCHID MOTH (Apterona crenulella) - UTAH - Numerous on cherry twigs in orchard east of Spanish Fork, Utah County. (Knowlton).

A CERAMBYCID BEETLE (Prionus sp.) - OKLAHOMA - Damaging apple roots in Sequoyah County. (Okla. Coop. Sur.).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Probably this species, beginning to hatch in Hampshire County orchards on warmer sites. Young nymphs on buds, most of which still dormant. (Wave). MARYLAND - Nymphs on apple buds in orchards at Hancock, Washington County. (U. Md., Ent. Dept.).

ROSY APPLE APHID (Anuraphis rosea) - DELAWARE - Nymphs on apple buds in Sussex County. (Kelsey).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OHIO - Light nymphal populations hatching from overwintering eggs at Wooster, Wayne County, on April 6. (Forsythe). Nymphs noted on green leaf tissue of apple trees in Springdale, Hamilton County, April 8. (Lyon). Aphids, believed this species, noted on apple trees in late March in Lawrence County, south central area, March 25. (Holdsworth).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - Caused heavy injury to 500 crab apple trees in nursery stock in Larimer County. (Simpson).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on cherry and plum nursery stock in Woodland, Yolo County. (Cal. Coop. Rpt.). UTAH - Common in apple and cherry orchards in Utah County at Alpine, Santaquin, Provo and Payson and serious in some small orchards in Orem area. (Knowlton).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Adults present on pear twigs in Hampshire County; no egg laying noted. (Wave). CONNECTICUT - Adults noted on pears. (Savos).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Adults heavy (up to 50-60 per leaf) on young foliage of Japanese persimmon at Gainesville, Alachua County. (Mead, Apr. 4). Eggs moderate on leaves of Citrus sp. at Floral City, Citrus County. (Williams, Apr. 3).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintered larvae very heavy and destroying new, developing buds on seedling pecan in Lee County; controls never applied to this tree. (McQueen). TEXAS - Emerged from overwintering hibernaculae and feeding on buds or new growth of pecan trees in Tarrant County. (Turney).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Eggs heavy on pecans during winter; now hatching on untreated seedling pecans in localized area of Lee County. Nymphs range 25-200 per early opening bud and feeding. (McQueen).

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 50 percent of groves (norm 60 percent); 33 percent economic (norm 34 percent). Populations slightly below average and in moderately low range. Although increasing on spring growth, little change in total population will be evident until late April. Highest districts north, west and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 40 percent of groves (norm 22 percent); 20 percent economic (norm 9 percent). Population higher than in March of prior years. Rapid infestation of new growth expected in late April. Highest districts east and central. CITRUS RED MITE (Panonychus citri) infested 56 percent of groves (norm 66 percent); 27 percent economic (norm 40 percent). Although below average, this mite is important in about 7 percent of groves. Little increase expected before May. Highest districts north, central and west. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) at very low levels and will not be a problem. PURPLE SCALE (Lepidosaphes beckii) infested 83 percent of groves (norm 80 percent); 14 percent economic (norm 16 percent). Highest districts south and east; increase expected. GLOVER SCALE (L. gloverii) infested 69 percent of groves (norm 27 percent); 19 percent economic (norm 1 percent). Highest districts east and south; increase expected. CHAFF SCALE (Parlatoria pergandii) infested 83 percent of groves (norm 42 percent); 23 percent economic (norm 1 percent). Highest districts east and central; little change expected. YELLOW SCALE (Aonidiella citrina) infested 44 percent of groves (norm 9 percent); 13 percent economic (norm 1 percent). Highest districts central and south; increase expected. BLACK SCALE (Saissetia oleae) infested 15 percent of groves (norm 15 percent); 7 percent economic (norm 4 percent). Highest district south; slight increase expected. Adult WHITEFLIES present in majority of groves and will continue to increase. Immature population declined, but still above normal. The expected sharp increase in March brought APHID populations to slightly above normal level. Aphids will continue to be abundant through April. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Adults heavy on citrus trees in Courtland, Sacramento County. (Cal. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Adults continue to feed on new, developing flower buds on scupernongs and other grapes in Lee County. (McQueen). FLORIDA - Larvae and adults moderate on grapevines at Springhead, Hillsborough County. Larvae skeletonizing leaves throughout vineyard. (Custead, Apr. 2). ARIZONA - Causing some damage to grapes in Maricopa County. (Ariz. Coop. Sur.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Females laying eggs on leaves of Lake Emerald grape (a hybrid) at Gainesville, Alachua County. (Mead).

GRAPEVINE APHID (Aphis illinoisensis) - FLORIDA - Moderately damaging grapevines at Springhead, Hillsborough County. (Custead, Apr. 2).

LEAFHOPPERS (Erythroneura spp.) - ARIZONA - Prevalent in grapes in Maricopa County; generally distributed over entire area. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

FLEA BEETLES (Epitrix spp.) - ARIZONA - Some damage reported on corn, tomatoes and peppers in Stanfield area, Pinal County; controls not completely effective. (Ariz. Coop. Sur.).

NOCTUID MOTHS - FLORIDA - Larvae of unspecified species infesting 53 percent of 200 cabbage plants at Sanford, Seminole County; damaged ranged light to heavy. (Desin).

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Infested 43 percent of 200 cabbage plants at Sanford, Seminole County; damage light to moderate. (Desin).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues a problem in Yuma and Maricopa Counties. Only limited controls being applied presently. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Appears well distributed in Yuma Valley, Yuma County; leaf curling evident in some cantaloups. (Ariz. Coop. Sur.).

Beet Leafhopper Survey, Texas and New Mexico - The beet leafhopper (Circulifer tenellus) survey was begun February 25 and completed March 10, 1964. A total of 2,624 miles was traveled in Texas and 565 miles in New Mexico. A total of 45 counties was surveyed in Texas and 7 counties in New Mexico, with 92 stops being made in Texas and 25 stops in New Mexico. Host plants were encountered at 66 percent of the stops in Texas and at 40 percent of the stops in New Mexico. The number of beet leafhoppers per 100 square feet was 11 in Texas and 32 in New Mexico, compared with 8.6 in Texas and 6.7 in New Mexico for 1963. Beet leafhopper populations were heavier in Texas but host plants sparser; leafhoppers were probably more concentrated. Populations were much heavier in flixweed in the sugar beet-growing area around Hereford. Populations in New Mexico were higher, with the scarcity of hosts probably causing a concentration of beet leafhoppers. (PPC and cooperating agencies).

POTATO PSYLLID (Paratrioza cockerelli) - NEVADA - Adults generally light but numerous eggs present on wild Lycium sp. where plants have foliage in southeastern Clark County. Many plants in this area lack foliage and potential population low. (Bechtel, Zoller).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - OHIO - Moderate on greenhouse tomato plants near Cincinnati, Hamilton County. (Lyon).

THRIPS - NEW MEXICO - Counts in onion fields in Dona Ana County increased from 1-2 per plant to 4-6 per plant during past 10 days. (N.M. Coop. Rpt.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Infested 4 percent of 200 cabbage plants at Sanford, Seminole County; damage light. (Desin).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First known emergence of season occurred in experimental cages at Safford on March 30, when 3 moths emerged; 3 additional moths emerged April 2. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK HILLS BEETLE (Dendroctonus ponderosae) - WYOMING - Surveys conducted by U.S. Forest Service indicate approximately 39,160 trees in Black Hills National Forest will need treatment. (Marks).

A FALSE POWDER-POST BEETLE (Amphicerus cornutus) - CALIFORNIA - Medium on Tamarix sp. in Cabazon, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Surveys in Portland area, Multnomah County, began April 6, with 10 inspectors engaged in yard-to-yard search. Pines in all nurseries in State being checked. Surveys to be completed by June 1. There is no known infestation in State at present time. (Larson).

AN OLETHREUTID MOTH (Rhyacionia zozana) - CALIFORNIA - Light on hybrid pine trees in California Division of Forestry Demonstration Forest in Paradise, Butte County, and El Dorado County. This is a native western moth. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - MARYLAND - Moderate to heavy on ornamental white pines in several sections of Prince Georges County. (U. Md., Ent. Dept.). OHIO - Light infestations noted on Scotch pine near Bethel, Clermont County, southwest. First eggs of season observed under overwintering females. (Lyon).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Adults heavy on Colorado spruce in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WISCONSIN - High populations observed on Mugho pines in southeastern counties. Needles of some trees browning. Normal quantities of eggs present in 90 percent of individuals. Parasitism low. (Wis. Ins. Sur.). CALIFORNIA - Locally heavy on Colorado spruce in Courtland, Sacramento County. (Cal. Coop. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - WISCONSIN - Populations high on Mugho pines in southeast; needles on some trees browning. Approximately 92 percent of specimens contained apparently healthy individuals. Parasitism low. (Wis. Ins. Sur.).

A PINE RESIN MIDGE (Retinodiplosis resinicola) - ALABAMA - Few active larvae noted on limbs of loblolly and shortleaf pines in Lee County. (Barwood et al.).

A PINE SAWFLY (Neodiprion pratti pratti) - NORTH CAROLINA - Hatching underway March 18 in Vance and Granville Counties; complete April 2. Cold conditions during portion of period had no apparent effect on mortality of young larvae. (Green).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Heavy numbers defoliating some cherry trees in Monroe County. (Lemons). OKLAHOMA - Present on native plum statewide. (Okla. Coop. Sur.). NORTH CAROLINA - Larvae reported leaving wild cherry and crawling about in Lumberton, Robeson County. (Bartley). VIRGINIA - Small tents noticeable in Campbell, Appomattox, Buckingham, Amelia, Cumberland, Powhatan, Goochland, Louisa, Fluvanna, Albemarle, Amherst and Nelson Counties. (Tarpley). ILLINOIS - Eggs not yet hatched in Cumberland and

Jasper Counties April 6, but larval emergence observed April 7 in White County and April 8 in Marion and Effingham Counties; no nest building had occurred. Larvae making small nests in Johnson and Franklin Counties April 8. (Ill. Ins. Rpt.).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Hatching noted on roadside brush in Washington County during week of March 23. (Larson).

SPRING CANKERWORM (Paleacrita vernata) - CONNECTICUT - Adults noted about lights; larvae should appear soon. (Savos). PENNSYLVANIA - Adults abundant on ash and cherry in Crawford County during late February. (Carlson). NORTH DAKOTA - Emergence of male adults continues; slight increase in numbers observed in Fargo area, Cass County. No females noted to April 10. (N.D. Ins. Sur.).

LINDEN LOOPER (Erannis tiliaria) - CONNECTICUT - Adults noted about lights; larvae should appear soon. (Savos).

FALL WEBWORM (Hyphantria cunea) - CALIFORNIA - Larvae medium on alder and willow in Twain Harte, Tuolumne County. (Cal. Coop. Rpt.).

A CUTWORM (Ufeus faunus) - NEVADA - Light to moderate on cottonwood trees in Moapa Valley, Clark County. (Bechtel).

ELM BORER (Saperda tridentata) - NORTH CAROLINA - Adults found in yard in Mecklenburg County; presumably came from dying elm in yard. (Wright).

POPLAR TWIG GALL APHID (Pemphigus populiramulorum) - COLORADO - Injury caused during 1963 season abundant on cottonwood at Yuma, Yuma County. Det. by M. A. Palmer. (Goeglein).

WHITE-LINED SPHINX (Celerio lineata) - ARIZONA - Large adult populations noted about ornamentals in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

AZALEA LEAF MINER (Gracilaria azaleella) - FLORIDA - Moderate on azalea at Fairvilla, Orange County. (Griffith, Apr. 3).

AN ARCTIID MOTH (Seirarctia echo) - FLORIDA - Larvae feeding on seeds of Zamia sp. at Englewood, Sarasota County. (Saunders, Apr. 4).

A LEAF ROLLER MOTH (Batodes angustiorana) - CALIFORNIA - Light on yew trees in Los Angeles, Los Angeles County; previous records go back to 1932 in San Francisco Bay region, Santa Cruz and San Mateo Counties. (Cal. Coop. Rpt.).

A BARK BEETLE (Phloeosinus cupressi) - CALIFORNIA - Heavy on Chamaecypris ellwoodi in nursery in San Mateo, San Mateo County. (Cal. Coop. Rpt.).

A LEAF BEETLE (Chrysomela interrupta) - FLORIDA - Abundant on alder bushes in Alachua County April 4. Collected and determined by L. A. Hetrick. (Fla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - OHIO - Heavy on chrysanthemums in greenhouse near Washington Court House, Fayette County, southwest. Nymphs noted on leaves and in flowers. Many flowers unsalable. (Lyon).

ROSE APHID (Macrosiphum rosae) - ALABAMA - Moderate on new growth of ornamental roses in localized areas of Montgomery, Macon and Lee Counties. Controls effective. (Blackwell et al.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Light to moderate on roses in Graham County. Moderate to heavy populations damaging roses in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

APPLE APHID (Aphis pomi) - MARYLAND - Nymphs infesting flowering crab apple trees at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

APHIDS - OKLAHOMA - Several species active on various ornamentals in Stillwater area, Payne County. Cinara tujafilina heavy on arborvitae in Comanche and Beckham Counties. (Okla. Coop. Sur.).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Very heavy locally on azaleas in Covington County. Approximately half of plants in one landscape planting killed before controls applied. (Stephenson).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on forsythia nursery stock in Oroville, Butte County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Spotted infestations occurring on some ornamentals in Phoenix area of Maricopa County. (Ariz. Coop. Sur.).

A WAX SCALE (Ceroplastes sp.) - FLORIDA - Severe on stem and leaves of pigweed and leaves of hempvine at Hallandale, Broward County. (McLean, Mar. 31).

A PIT SCALE (Asterolecanium puteanum) - FLORIDA - Severe on stem of yaupon at Marineland, Flagler County. (Roberts, Apr. 2).

A MEALYBUG (Spilococcus larreae) - CALIFORNIA - Medium on Larrea sp. in Salton City, Imperial County. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Severe on leaves of Gardenia jasminoides at Fairvilla, Orange County. (Griffith, Apr. 2).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Infestations remain about same in Portland area, Multnomah County; samples taken April 6 indicate 75 percent of larvae pupated. No adults noted on that date. (Larson).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Heavy populations defoliating sweetpeas in Yuma County. (Ariz. Coop. Sur.). FLORIDA - Severely damaging stems and leaves of croton at Pembroke, Polk County. (Snell, Apr. 2).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - First Aedes sollicitans larvae of season noted in eastern Kent County on April 3. (Lake). TEXAS - Fairly high population of Culex salinarius existed in Port Arthur area throughout winter; also thought to be most common species in Beaumont area. Larval surveys show Culiseta inornata most dominant species in standing water; numerous Culex salinarius also present. Aedes sollicitans numerous in flood-water locations. Only significant fresh flood-water breeding so far has been Aedes vexans, which is appearing in fallowed rice fields. (Jefferson Co. Mosq. Cont. Comm.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts of 50 and 40 per head noted on yearling steers and cows, respectively, in Woodward and Harper Counties. Counts per head averaged 80 on yearling steers and 75 on cows in Payne County. Reported light in Seminole County. (Okla. Coop. Sur.).

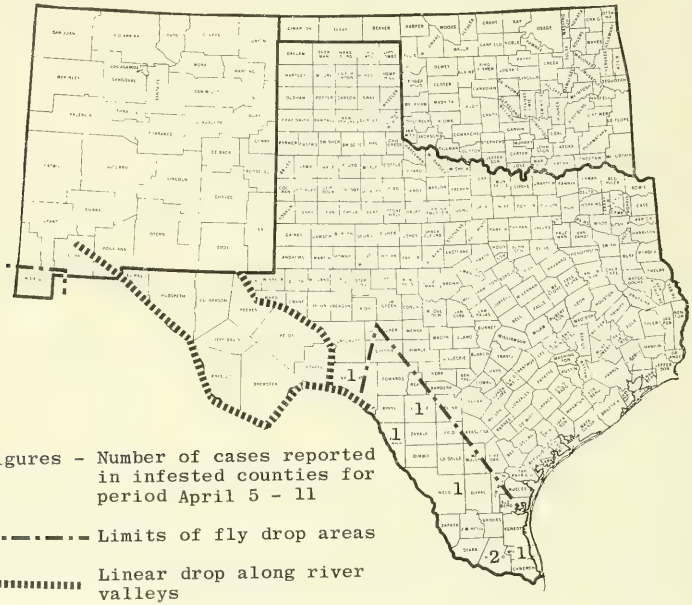
COMMON CATTLE GRUB (Hypoderma lineatum) - OHIO - Of minor economic importance throughout southwestern area, especially on native cattle. Some imported western steers infested. (Lyon).

BLACK BLOW FLY (Phormia regina) - ALABAMA - Collected from cattle in Butler County. (Ledbetter).

BLACK FLIES - ALABAMA - Heavy emergence in Macon, Tallapoosa, Montgomery and other counties causing general nuisance to residents. (Ledbetter, Barwood et al.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period April 5-11, seven screw-worm cases were reported from TEXAS. One case was reported in Webb County, 1 in Willacy County, 2 in Hidalgo County, 1 in Maverick County, 1 in Uvalde County and one in Val Verde County. All except the Val Verde case were within the barrier zone where sterile flies are currently being released. In addition to the regular release, each area is being "hot-spotted". Last year during this period, 83 cases were reported in Texas and New Mexico. The Republic of Mexico has reported 31 cases since April; however, only 3 have been collected since April 1, two of which were in Tamaulipas about 180 miles below the border, one in Sonora in a municipio adjacent to Arizona. During the period, a total of 100,797,450 sterile screw-worm flies was released with Texas receiving 21,979,450, New Mexico 394,000, and the Republic of Mexico 78,424,000. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 5 - 11

Limits of fly drop areas

Linear drop along river valleys

CATTLE LICE - OKLAHOMA - Counts of several species on cattle were light to moderate in Bryan County (south central) and moderate in Mayes County (northeast). Counts fewer than 1 per hair part noted in Woodward County (northwest). (Okla. Coop. Sur.). NORTH DAKOTA - Solenopotes capillatus heavy on cattle in Linton area, Emmons County. (N.D. Ins. Sur.). OHIO - Veterinarians and stockyard managers indicate Bovicola bovis infestations heavier than one year ago in Hillsboro, Highland County. Infestations primarily around neck, dewlap and brisket. (Michael).

HOG LOUSE (Haematopinus suis) - OHIO - Lower numbers reported this year. (Michael).

CHICKEN BODY LOUSE (Menacanthus stramineus) - OHIO - Several farm flocks infested in southwest; eggs and adults observed most frequently near vents. (Lyon).

BED BUG (Cimex lectularius) - ILLINOIS - Reported from 2 locations in State; in home and in poultry house. (Ill. Ins. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSOURI - Infesting caged layer flock in Montgomery County. (Houser, Thomas, Wood.).

HONEY BEE (Apis mellifera) - SOUTH DAKOTA - Infesting cattle bunkers and causing concern to Tripp County cattlemen. (Hintz).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Troublesome in homes at Clearfield, Davis County. Extremely numerous in and about homes in Salt Lake City area, Salt Lake County, and at Orem, Utah County. (Knowlton). COLORADO - A nuisance in numerous homes in Ft. Collins, Larimer County, and single observation of flight observed in lower foothills in area. (Ext. Serv. Staff). MINNESOTA - Reported as nuisance by homeowners in Minneapolis and St. Paul after few warm days. (Minn. Ins. Rpt.). WISCONSIN - Numerous inquiries being received concerning this pest. (Wis. Ins. Sur.). OHIO - Adults continue a major annoyance to homeowners throughout State. (Delaplane, Lyon). PENNSYLVANIA - Continues a nuisance. (Udine). VIRGINIA - Complaints increased during recent warmer weather in Roanoke area. (Allen).

CLOVER MITE (Bryobia praetiosa) - NEW MEXICO - Large numbers entering homes at Farmington and Aztec, San Juan County. (N.M. Coop. Rpt.). NEBRASKA - Activity increasing in homes in southeast area with advent of spring. (Bergman). MINNESOTA - Annoying to homeowners in Minneapolis and St. Paul after few warm days. (Minn. Ins. Rpt.). OHIO - Homeowners reporting annoyance, especially on sunny days. (Treece, Lyon). CONNECTICUT - A problem in East Hartford. (Savos). VIRGINIA - Numerous complaints concerning infestations in homes in Roanoke area during recent warmer weather (Allen); annoying in Amherst, Amherst County, and in Pennington Gap, Lee County (Rowell). NORTH CAROLINA - Large numbers annoying at a Halifax County location. (Pendleton, Robertson).

INDIAN-MEAL MOTH (Plodia interpunctella) - OREGON - Infestations in kitchen cupboards in homes in western part of State continue high. (Larson). OKLAHOMA - Adults emerging from stored products in homes causing concern in Payne County. (Okla. Coop. Sur.).

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Presence in stored products in homes causing concern in Stillwater area, Payne County. (Okla. Coop. Sur.).

SILVERFISH (Lepisma saccharina) - WISCONSIN - Noted and reported in number of Dane County homes. (Wis. Ins. Sur.).

PAVEMENT ANT (Tetramorium caespitum) - CONNECTICUT - Problem in Willimantic homes. (Savos). MARYLAND - Winged forms appeared at a location in Rising Sun, Harford County. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES - MASSACHESETTS - Inquiries concerning unspecified species about homes and summer camps in eastern part of State increasing daily. (Garland, Mar. 30-Apr. 3). CONNECTICUT - Swarming throughout State. (Savos). Swarming of Reticulitermes flavipes in homes probably peaking; swarming out-of-doors just beginning. (Johnson). PENNSYLVANIA - Unspecified species continue to appear. (Udine). MARYLAND - Winged forms appeared in and around several homes in central and western sections. (U. Md., Ent. Dept.). VIRGINIA - Unspecified species severely damaging public building in Clintwood, Dickenson County. (Dinwiddie, Mar. 24). Winged adults noted in Fredericksburg, Spotsylvania County (Rowell, Beck) and at Newport News (Rowell, Apr. 1). Damaged

spirea plants in Appomattox, Appomattox County. (Rowell, Smith; Apr. 1). NORTH CAROLINA - R. flavipes alates noted in Harnett and Haywood Counties. (Jenkins, Marsh, Mount). OHIO - Swarming by R. flavipes underway since late March in Columbus, Franklin County, central area. Heaviest swarming occurred during past few days. (Becker, Apr. 9). OKLAHOMA - First swarming of R. tibialis reported in Lawton area, Comanche County, April 6. Swarming also noted in Stillwater area, Payne County. (Okla. Coop. Sur.). COLORADO - Reticulitermes spp. noted at Norwood, San Miguel County. (Ext. Serv.). UTAH - Damaging another home in Logan, Cache County. (Knowlton). NEVADA - Reticulitermes sp. light in 4 homes in Reno, Washoe County. (Ting). OREGON - R. hesperus swarmed in several areas of Jefferson County week of March 28. (Grove).

A DRYWOOD TERMITE (Cryptotermes sp.) - DELAWARE - Reported in CEIR 14(12): 218 as undetermined species. Infested wicker furniture in home and also attacked floor under furniture. Det. by T. E. Snyder. Collected by P. P. Burbutis and D. MacCreary on March 9, 1964, at Wilmington, New Castle County. This is the first record for this genus in the State. (Burbutis).

CARPENTER ANTS - MASSACHUSETTS - Inquiries increasing concerning unspecified species about homes and summer camps in eastern area. (Garland, Mar. 30-Apr. 6). OREGON - Winged adults of Camponotus sp. collected in homes in Salem area; no damage noted. (Larson).

OLD-HOUSE BORER (Hylotrupes bajulus) - NORTH CAROLINA - Larvae taken from wood of home in Martin County. Det. by D. A. Mount. (Hodges).

SPOTTED PINE SAWYER (Monochamus maculosus) - COLORADO - Newly emerged adult collected in dormitory on Colorado State University campus at Ft. Collins, Larimer County. Det. by T. O. Thatcher. (Colo. Ins. Det. Comm.).

A LONG-HORNED BEETLE (Euderces pini) - NORTH CAROLINA - Considerable numbers emerged in several homes in Wake and Cumberland Counties about April 1. (Wray).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Fourth infestation found in Yuma County near original find. Trogoderma spp. heavy in stored grain products in storage bins in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

RED-LEGGED HAM BEETLE (Necrobia rufipes) - CALIFORNIA - Adults medium in stored copra in Richmond, Contra Costa County. (Cal. Coop. Rpt.).

A COLYDIID BEETLE (Murmidius ovalis) - NEBRASKA - Present in stored, shelled corn in Johnson County; this is the first known record in State. (Bergman).

INDIAN-MEAL MOTH (Plodia interpunctella) - DELAWARE - Infesting soybean and other seeds in seed warehouse in Sussex County. (Burbutis).

Stored-product Insects in Alabama - Routine warehouse inspections in Mobile County showed following species present: Adults - Tribolium confusum 10; T. castaneum 1; Plodia interpunctella 1; Tenebroides mauritanicus 1. Larvae - Hermetia illucens 1; Attagenus piceus 9. (Seibles, Mathews, Wallace).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Small numbers of Hippodamia convergens, Coccinella novemnotata, H. parenthesis and Coleomegilla maculata fuscilabris observed in alfalfa in extreme southern area. (Ill. Ins. Rpt.). KANSAS - Lady beetles, primarily H. convergens, present in trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). NEW MEXICO - Hippodamia spp. adults in Chaves and Eddy Counties on small grain and alfalfa.

(N.M. Coop. Rpt.). NEVADA - Larvae range 1-2 per sweep in many alfalfa hay fields in Moapa Valley, Clark County. (Bechtel).

LACEWINGS - KANSAS - Present in trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). OHIO - Several adults of Chrysopa spp. observed on tree foliage and weeds in southwest area. (Lyon).

DAMSEL BUGS - KANSAS - Trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). ILLINOIS - Adults noted in small numbers on alfalfa in extreme southern area. (Ill. Ins. Rpt.). WISCONSIN - Nabis ferus adults observed in grain fields in southern area. (Wis. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ILLINOIS - Adults noted in small numbers in extreme southern area on alfalfa. (Ill. Ins. Rpt.).

A FLOWER BUG (Orius insidiosus) - ILLINOIS - Small numbers of adults noted on alfalfa in extreme southern area. (Ill. Ins. Rpt.).

PREDACEOUS THRIPS - CALIFORNIA - Leptothrips mali and Rhipidothrips brunneus adults light on maple trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - COLORADO - Collected from brand named bagged soil for house plants at Fort Collins, Larimer County. (Colo. Expt. Sta.).

LESSER MEALWORM (Alphitobius diaperinus) - MARYLAND - Adults found in wood shavings used as litter in broiler house at Girdletree, Worcester County. (U. Md., Ent. Dept.).

PUNCTUREVINE WEEVILS (Microlarinus spp.) - CALIFORNIA - M. lareynii and M. lypriformis adults caused some concern by occurring on young citrus, grapes and possibly other commercial plants. Investigations show affected crops grew close to puncturevine stands and were wrapped or had newspaper mats around young plants for protection. When feeding occurred, it was in the form of minute punctures which do little or no damage. No control of weevils needed other than removing wrappings or raising them above ground level. Inspection for other damaging pests not so obvious as puncturevine weevils recommended. Mechanical destruction of puncturevine late in season disturbs adults causing them to seek shelter. Tree or vine wrappings offer desirable protection; adults congregate inside. (J. Holloway).

A PRICKLYPEAR WEEVIL (Gerstaecheria sp.) - TEXAS - Specimens noted in Opuntia sp. in Zavala County. (Burke).

FALSE CHINCH BUGS (Nysius spp.) - NEVADA - Nysius sp. heavy on wild crucifers in Moapa Valley, Clark County. (Bechtel). COLORADO - N. raphanus adults medium on wild mustard in Cabazon, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - OREGON - Hatching and moving from winter quarters in Forest Grove area, Washington County. (Getzendaner).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Single mound noted at each of 2 new locations at Apopka, Orange County. County previously known infested. (Avazian, Beck).

VESPID WASPS - UTAH - Vespa sp. and yellow jackets active in southern Utah County. (Knowlton).

A SNAIL (Oxychilus alliarius) - OREGON - Specimens collected in greenhouse in Portland, Multnomah County, determined this species. No plant damage noted. (Goeden).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																								
Hope 4/2-8				1							7													
Kelso 4/2-8				3							1						14				10			
CALIFORNIA																								
Davis 4/4-10																	5							Misc.
FLORIDA																								
Gainesville 4/6			BL	2					7									2						
ILLINOIS																								
Urbana 4/7			3BL																		3			
KANSAS																								
Manhattan 4/6-9				1																				
Wathena 4/2,6				3																	5			
MISSISSIPPI																								
Stoneville 4/4-10	36-82	1.20"	MV	1			19				3						27	1			81			
Stoneville 4/4-10	36-82	1.20"	BL	9			7										52				101			
SOUTH CAROLINA																								
Charleston 4/6-12	40-76	1.05"	BL	3			0		1	0	0	0					1	0	0	0	26		1	
Clemson 4/4-10			BL														1	7			1			
TENNESSEE (Counties)																								
Cumberland 3/17-23				1																				
Greene 3/24-30				1													1							
Greene 3/31-4/6				1																	4			
Knox 3/24-30				1													2				1			
Knox 3/31-4/6				3													3	3			6			
Madison 3/24-30				5																				
Madison 3/31-4/6				2													4	1			3			
Maury 3/24-30				3																				
Maury 3/31-4/6				2													1	1			3			
Robertson 3/17-23				1																				
Robertson 3/31-4/6																	2							
TEXAS																								
Brownsville 4/2-8			6BL	35			18		1827	2	743	55		18387			142	27	53	51	180		227	
Waco 4/4-10			BL	48			1		15		8	0					80	6		255		2	0	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 326)

SHADE TREE INSECTS

Highlights:

FALL WEBWORM was very heavy in central and western areas of Pennsylvania, and defoliation was more prevalent than in any previous year throughout southern Indiana. Fall webworm nests were very abundant in the Mesilla and Pecos Valleys of New Mexico by mid-June and heavy infestations again appeared on various hosts in September and October in the State. SPRING CANKERWORM and FALL CANKERWORM were damaging and of concern in several areas from New England to California. Several species of TENT CATERPILLARS were of concern during 1963, with damage ranging up to severe defoliation in some areas, especially on oaks in central Texas.

ELM LEAF BEETLE was more abundant in eastern Washington than for the previous two seasons, was above normal in Utah, and extremely heavy in many locations over California. Elm leaf beetle was also serious in areas of Nevada, Arizona, New Mexico, Colorado, Nebraska, Kansas, Oklahoma, Texas and several Southern and New England States. New infestations of SMALLER EUROPEAN ELM BARK BEETLE were found in Union County, South Dakota, with additional infestations reported in Yankton County. To the end of 1963, no Dutch elm disease had been found in South Dakota, but the disease was more pronounced in Wisconsin than in 1962. This beetle was found for the first time in Midland County, Texas, during 1963.

As usual, numerous APHIDS were of concern in some areas of the Nation, as were various SCALE INSECTS.

BIRCH LEAF MINER was moderate to heavy in Maine, Vermont, Rhode Island and New Jersey, and control of this pest is becoming a problem in nurseries in Oregon from Portland to Eugene.

Several species of SAWFLIES constituted local problems in some areas of a few States.

SPIDER MITES were of some concern on a variety of hosts in Kansas, Colorado, Arizona and California during the 1963 season.

FALL WEBWORM (Hyphantria cunea) began appearing in RHODE ISLAND in mid-July and was spotty statewide during the 1963 season. This arctiid was very heavy during the season in certain areas of central and western PENNSYLVANIA. Fall webworm was abundant on sweetgum in areas of Sussex County, DELAWARE, and was more numerous during 1963 in New Castle County than in 1962 on walnut, hickory and other trees. This webworm was present throughout VIRGINIA during the season in usual numbers. Defoliation of native cherry, persimmon and other deciduous trees throughout southern INDIANA was the most prevalent observed in any previous year, with numerous trees being stripped of all foliage during August.

Fall webworm, which is always present and cyclic in outbreak years in KANSAS, was frequently observed in that State during 1963, and was reported feeding on ornamental trees in MISSOURI. Fall webworm appeared early in ARKANSAS, with fully grown larvae observed in southern portion of the State in late May. Infestations were heavy in northern Arkansas during late summer. The pest was of concern on shade trees in Calhoun County, TEXAS, during the season. Fall webworm adults began appearing in light trap catches in relatively large numbers the first week of June in Dona Ana County, NEW MEXICO. Nests were very abundant in shade trees in Mesilla and Pecos Valleys by the middle of June, and heavy

infestations again appeared in the State on poplar, Chinese elm and other shade trees in September and October.

Fall webworm was abundant on wild plum in wooded areas of NORTH DAKOTA, but populations were lower than usual in the Willamette Valley of OREGON during the 1963 season.

FALL CANKERWORM (Alsophila pometaria) populations were heavy on shade trees in the Guerneville area of Sonoma County, CALIFORNIA. Larvae of cankerworms were extremely abundant on shade trees in most areas of NORTH DAKOTA during 1963, with females of fall cankerworm being very numerous in the southeastern part of the State during late September and early October. Adults, primarily spring cankerworm (Paleacrita vernata) began appearing in large numbers in blacklight traps in Dane County, WISCONSIN, in late March. Severe, but localized, defoliation was noted in parts of Columbia, Dane and Dunn Counties, Wisconsin, by early summer. Spring cankerworm and fall cankerworm were very abundant in central, west and west-southwest districts of ILLINOIS in late April and May, with many elm and oak woodlands severely defoliated. Adults of spring cankerworm appeared early in IOWA, the first male being observed March 5; heavy emergence began March 20 and was completed by April 4. Wingless females were observed on April 4. Hatching was underway by April 17-18 in the Shenandoah area of Page County and probably across the southern portion of Iowa. By April 26, cankerworm larvae ranged 1-10 per elm leaf, with 10-80 percent loss of leaf surface. Cankerworm controls were applied at Bedford and Wapello. At Pella, Iowa, unspecified cankerworms had destroyed 15-20 percent of the leaf surface by May 12. Loss of leaf surface in Iowa during the 1963 season ranged 10-100 percent.

Larval activity by spring cankerworm caused heavy defoliation of trees in portions of central, eastern and southeastern NEBRASKA, and the pest, always present in KANSAS, was frequently observed there during 1963. A heavy flight of male spring cankerworm was observed in central MISSOURI during March and early April. Larval populations were reported in the southwest, west central and northwest areas of the State, where they fed on elm, apple and other trees during mid and late April. Unspecified cankerworms caused heavy, local damage to hackberry trees in several areas of TEXAS during 1963.

Fall cankerworm and spring cankerworm populations were extremely heavy throughout NEW JERSEY during the 1963 season. Larvae of mixed species of cankerworms, with fall cankerworm predominant, appeared the first week of May in RHODE ISLAND. Defoliation was heavy in residential areas of Cranston, Providence County, and Warwick, Kent County, and to a lesser extent in Smithfield, Providence County, and Middletown, Newport County. Adult females were noted in Cranston, Rhode Island, on October 30.

EASTERN TENT CATERPILLAR (Malacosoma americanum) was frequently observed in KANSAS during 1963, where it is always present. The pest appeared early in ARKANSAS, with nests 3-5 inches in diameter being present as early as March 30. Eastern tent caterpillar damaged ornamental trees in MISSOURI during the season. First nests of this tent caterpillar in ILLINOIS were observed as far north as Greenup, Cumberland County, on April 4. In general, the pest was not so abundant as it was the last few years; however, localized spots in southern Illinois were heavily infested, with some cherry trees being completely defoliated.

Eastern tent caterpillar was present in large numbers across TENNESSEE during the spring of 1963, was unusually abundant in parts of the Piedmont area of SOUTH CAROLINA during the season, and was present in usual numbers throughout VIRGINIA.

First small tents of eastern tent caterpillar were noted on wild cherry April 2 throughout DELAWARE. Adults and eggs were first noted on June 11. Populations on wild hosts were relatively low in Delaware during 1963, as they were during the 1962 season. Tents of eastern tent caterpillar were quite numerous along

roadsides throughout central CONNECTICUT in May. Hatching of eastern tent caterpillar in RHODE ISLAND began April 15 in Cranston, Providence County, with adults taken in blacklight traps in Kingston, Washington County, and egg masses found in East Greenwich, Kent County, July 5-9. The pest was heaviest in the northern portion of Rhode Island during 1963. Infestations and damage by eastern tent caterpillar occurred on several species of trees in southern MAINE and population levels, as determined by roadside growth, appeared to be somewhat lower than in 1962.

FOREST TENT CATERPILLAR (Malacosoma disstria) larvae were present in Cumberland and Johnston, Providence County, RHODE ISLAND in early June. Damage by forest tent caterpillar ranged from moderate to complete defoliation of tupelo-gum, sweetgum and several species of oak throughout the southern portion of LOUISIANA during 1963. Populations were so heavy in some areas that larvae moved off of defoliated normal hosts and defoliated adjacent pecans. Predation of pupae by several species of birds was extremely heavy in the Baton Rouge area of Louisiana. Forest tent caterpillar caused moderate to severe defoliation of oak trees in central TEXAS during the early spring of 1963, and continued numerous on fruit and shade trees in Bonner and Boundary Counties, IDAHO, as for the past several years.

WESTERN TENT CATERPILLAR (Malacosoma pluviale) and a few forest tent caterpillar eggs began hatching in late March and full-grown larvae were spinning in early June, with adults flying by early July in WASHINGTON. Severe, localized infestations on ornamental trees and shrubs were noted in San Juan County. GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) populations and damage to cottonwoods were severe in Virgin Valley, Clark County, NEVADA, in April.

TENT CATERPILLARS (Malacosoma spp.) caused large scale infestations on alder, poplar, birch and willow in IDAHO from 10 miles south of Coeur d'Alene, Kootenai County, and continued intermittently northward to Sandpoint area of Bonner County. Pupation was general by the first week of July in Idaho. Populations of unspecified TENT CATERPILLARS were generally low in NEW JERSEY in 1963, but large numbers of a TENT CATERPILLAR (Tolype laricis) were taken in blacklight traps in southern NEW HAMPSHIRE.

SATIN MOTH (Stilpnotia salicis) populations were moderate and caused only light damage to poplars in early June at Corinna, Penobscot County, MAINE, but larval populations were heavy locally on poplar in Modoc County and light locally in Siskiyou County, CALIFORNIA. In RHODE ISLAND, an isolated infestation of WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) occurred in Pawtucket, Providence County, July 1, otherwise, only scattered individuals of this moth were seen in the State during 1963.

UGLY-NEST CATERPILLAR (Archips cerasivoranus) occurred locally on wild cherry in Smithfields and Scituate, Providence County, in early July, and OAK WEBWORM (Archips fervidanus) was noted in Coventry, Kent County, on July 2, both in RHODE ISLAND.

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceanus) was abundant on wild plum in shelterbelts in southeastern NORTH DAKOTA during the 1963 season. FRUIT-TREE LEAF ROLLER (Archips argyrospilus) was a pest of deciduous shade trees and ornamental shrubs in COLORADO, and infestations in WYOMING were lower than in 1962, with the damage to ornamentals being much less throughout the State when compared with previous years.

Unspecified LEAF ROLLER MOTHS heavily damaged oaks throughout UTAH during 1963, and several species caused heavy damage to shade trees in NEW JERSEY, with pin oaks being especially injured.

Large populations of VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo), SADDLED PROMINENT (H. guttivittata) and a NOTODONTID MOTH (Schizura ipomeae) defoliated several species of oaks during August and September throughout central KANSAS.

Defoliation was extensive, but occurred so late in the season that damage was more esthetic in value than in health and vigor of the trees. Infestations of another NOTODONTID MOTH (Datana sp.) caused severe local damage to oak trees in the Brazos-Burleson County area of TEXAS. WALNUT CATERPILLAR (Datana integerrima) was much less abundant in ILLINOIS during 1963 than in 1962.

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) was frequently observed in KANSAS during 1963. The pest was also damaging to maples in west central and northwestern MISSOURI during the season, with heaviest populations in the northwest area where some defoliation of maples was observed. ORANGE-STRIPED OAKWORM (Anisota senatoria) was first noted in RHODE ISLAND in South Kingston and Exeter, Washington County, August 5-7, but activity was very light and of short duration.

GREGARIOUS OAK LEAF MINER (Cameraria cincinnatiella) infestations were moderate on oak trees early in August in Rumford, Oxford County, MAINE. LILAC LEAF MINER (Gracilaria syringella) was a pest of deciduous trees and ornamental shrubs in COLORADO, and BOXELDER LEAF ROLLER (Gracilaria negundella) caused medium to heavy damage on boxelder in Elko County, NEVADA, during August and September.

Unspecified lepidopterous, coleopterous and dipterous LEAF MINERS were pests of deciduous shade trees and ornamental shrubs in COLORADO during 1963.

ASH BORER (Podosesia syringae fraxini) damaged green ash in Billings, Yellowstone County, MONTANA, and was a pest of deciduous trees and ornamentals in COLORADO in 1963.

PUSS CATERPILLAR (Megalopyge opercularis) caused moderate to heavy defoliation of water oaks in localized areas of Laurens County, GEORGIA, and was present as usual on shade trees and various ornamentals in many areas of TEXAS. AILANTHUS WEBWORM (Atteva aurea) caused serious defoliation of tree-of-Heaven during late May in SOUTH CAROLINA, and was much less abundant in ILLINOIS during 1963 than in 1962.

CARPENTERWORM (Prionoxystus robiniae) caused some damage, particularly in shelterbelts, to poplar and ash in NORTH DAKOTA, and was a pest of deciduous shade trees and ornamentals in COLORADO. AMERICAN DAGGER MOTH (Acronicta americana) infestations and damage ranged medium to heavy on boxelder and light on silver maple during August and September in Washoe County, NEVADA. The pest was more prevalent in Nevada than in 1962. CALIFORNIA OAKWORM (Phryganidia californica) was severe on oak trees statewide in CALIFORNIA during the 1963 season.

CATALPA SPHINX (Ceratoma catalpae) was much lighter during 1963 in ILLINOIS than in the last few years; however, some defoliation of catalpa trees occurred, especially in western Illinois. Most of the larvae examined late in the season in the State were heavily parasitized. BUCK MOTH (Hemileuca maia) caused moderate to severe defoliation of oak trees in central TEXAS during the early spring.

An OLETHREUTID MOTH (Proteoteras aesculana) infestations were local on maple trees in Sutter County, CALIFORNIA, and another OLETHREUTID (Petrova sp.) was a pest of evergreen trees and shrubs in COLORADO.

MOURNING CLOAK BUTTERFLY (Nymphalis antiopa) was quite abundant on willows in scattered areas of PENNSYLVANIA, but only local infestations were reported from over NORTH DAKOTA during the 1963 season. Mourning-cloak butterfly larvae on shade tree foliage attracted attention in Midland, Eastland and Young Counties, TEXAS, and defoliated Chinese elms during the spring in Santa Fe, Santa Fe County, NEW MEXICO. Medium infestations of mourning-cloak butterfly developed on elms at various localities in NEVADA from May through August. TIGER SWALLOWTAIL (Papilio glaucus) was a pest of deciduous shade trees in COLORADO. A BRUSH-FOOTED BUTTERFLY (Asterocampa celtis), which is always present and cyclic in outbreak years in KANSAS, was frequently observed on hackberry in that State during the 1963 season.

Of the various Coleoptera reported during the 1963 season, LEAF BEETLES appeared to be the more serious. ELM LEAF BEETLE (Galerucella xanthomelaena) was more abundant than in the previous two seasons on elms in eastern WASHINGTON localities, and defoliated large numbers of elms in Jackson and Josephine Counties, OREGON. Adults, eggs and first and second-stage larvae were present in the Parma area of Canyon County, IDAHO, during the first week of July and larvae ranged up to 8 per leaf on unsprayed foliage. Elm leaf beetle numbers and/or damage were more abundant than normal in UTAH during 1963, with many elms defoliated in the Farmington-Layton area of Davis County and the Roy-Ogden area of Weber County. Elm leaf beetle infestations and damage ranged medium to heavy as usual in infested areas of NEVADA, but no additional spread was recorded. In CALIFORNIA, the pest was extremely heavy in many locations and seriously damaged elms where no treatment was applied. Elm leaf beetle fed on elm trees in Yavapai and Graham Counties, ARIZONA, both new county records during 1963. This leaf beetle continued to spread to new areas in northern counties of NEW MEXICO, but populations were not nearly so severe in the Albuquerque area of Bernalillo County, which was so heavily infested in 1962. Elm leaf beetle was a pest on deciduous trees and shrubs in COLORADO.

Elm leaf beetle adults appeared on elms in NEBRASKA in early May, with extensive foliage damage present in the southeastern area in June and July. The pest was more severe during 1963 in KANSAS than in 1962, and was reported from additional counties. Heavy infestations of the beetle were observed on elms throughout MISSOURI, with defoliation common. Damage by elm leaf beetle was serious throughout most areas of OKLAHOMA for the sixth consecutive year. Adult movement from hibernation quarters began in late March, with first egg deposition noted in mid-April. Activity continued until late September in Oklahoma during 1963. Elm leaf beetle populations caused light to moderate damage to elms in northwest TEXAS during the season. Elm leaf beetle was heavier in ARKANSAS during 1963 than in many years, and was one of the more serious pests of shade trees through central and northern ALABAMA. Large numbers of this leaf beetle appeared on elm trees across TENNESSEE during the season.

Elm leaf beetle caused severe browning and early leaf drop on many Chinese elm trees in the southern half to two-thirds of ILLINOIS in 1963. In INDIANA, larvae were feeding on Chinese elm in central areas in June, with infestations being locally heavy. Elm leaf beetle was present in usual numbers in VIRGINIA, and adults caused rather heavy feeding injury to elms early in the 1963 season in areas of Sussex County, DELAWARE. Elm leaf beetle activity was normal in RHODE ISLAND, with fluctuations probably corresponding to efficiency of local spray programs. There was a very marked reduction in defoliation by this leaf beetle statewide in VERMONT during 1963, with browning noticed on occasional elms.

LARGER ELM LEAF BEETLE (Monocesta coryli) emerged in large numbers under elm in Forsythe County, NORTH CAROLINA, on June 7 and 8, but did not appear to be any more troublesome than in 1962. The pest was present in Chesterfield County and other lower Piedmont counties of SOUTH CAROLINA. Larger elm leaf beetle became a serious pest for the first time in several years in central ALABAMA on American elms on lawns and in forest lowlands.

LOCUST LEAF MINER (Xenochalepus dorsalis) was a common pest of shade trees in OHIO during 1963. This leaf mining beetle did not cause so severe browning of black locust trees as usual in central ILLINOIS during 1963. Light infestations were observed over widely scattered areas of that State, with 9 new county records established. Locust leaf miner adults were quite abundant during May in PENNSYLVANIA, but actual injury was not so severe as in 1962.

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) adult and larval feeding injury was heavy on many willows during the last half of May in areas of Kent County, DELAWARE, and the pest was present statewide in RHODE ISLAND, with defoliation being heavier on wild pussy willow than on ornamental willows.

ELM CALLIGRAPHA (Calligrapha scalaris) was active but less damaging in OKLAHOMA during 1963; however, feeding on elms in KANSAS was more severe than in 1962, with injury being most severe in the south central area of the State.

ASPEN LEAF MINER (Chrysomela crotchi) and COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) were common on poplar and willow over NORTH DAKOTA during 1963.

A LEAF BEETLE (Anomoea laticlavia), after being a minor problem on honeylocust for two years in KANSAS, was reported to have caused extensive injury in several counties throughout the State during 1963. Other LEAF BEETLES were also of some concern. Large numbers of Physonata alutacea were noted on Cordia boissieri (anacahuita) in Cameron County, TEXAS, and Lema trilineata californica occurred on native Jimpson-weed and on a few other Datura spp. and Physalis spp. plants in CALIFORNIA.

SPOTTED PINE SAWYER (Monochamus maculosus) was a pest of evergreen trees and shrubs in COLORADO during 1963. The usual damage by TWIG GIRDLER (Oncideres cingulata) was evident on a variety of trees from mid-September through November in OKLAHOMA, and numerous inquiries were received during August and September concerning the severing of elm branches by this pest in KANSAS. Twig girdling by this long-horned beetle was very noticeable in Lancaster County, NEBRASKA, in September. TWIG PRUNER (Elaphidion villosum) was evident in normal numbers statewide in RHODE ISLAND during the 1963 season.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata) was a common pest of shade trees in OHIO during 1963. Damage by BRONZE BIRCH BORER (Agrilus anxius) to white birch was more noticeable this season than in the past few years in WISCONSIN, and the pest continues to be a serious problem wherever birch trees are planted in urban areas of MINNESOTA. A severe infestation of a WOOD BORER (Agrilus sp.) was observed on bur oak in the Grandin area of Cass County, NORTH DAKOTA, and Agrilus angelicus was locally heavy on oaks in San Diego County, CALIFORNIA.

New infestations of SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) were found in Union County, SOUTH DAKOTA, with additional infestations also being reported again in Yankton County during 1963. Large numbers of dead and dying trees along a creek provided an optimum breeding habitat for this insect in Union County. To the end of 1963, no infection of Dutch elm disease had been found in South Dakota. Smaller European elm bark beetle commenced emerging and peaked by the first week of June in WISCONSIN. Dutch elm disease was more pronounced in Wisconsin during 1963 than in 1962. Feeding by smaller European elm bark beetle was common on elm trees in southeastern NEBRASKA during 1963, and the species was found on Chinese elm trees in Midland County, TEXAS, for the first time. Smaller European elm bark beetle was collected in large numbers from trap logs in the Clemson area of SOUTH CAROLINA. This recovery was part of a statewide survey in progress to determine the distribution of this insect, the principal vector of Dutch elm disease in South Carolina. Smaller European elm bark beetle and NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) were collected in Halifax County, NORTH CAROLINA, in June, and native elm bark beetle in Forsyth County in mid-September.

WILLOW FLEA WEEVIL (Rhynchaenus rufipes) infestations in Warwick, Kent County, and in Narragansett, Washington County, RHODE ISLAND, in August and September were the first records of this weevil in the State for several years.

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) was a pest of deciduous shade trees and ornamental shrubs in COLORADO during the 1963 season.

APHIDS were of concern on shade trees during the 1963 season as usual. BOXELDER APHID (Periphyllus negundinis) was very abundant on a majority of boxelder trees throughout most of the spring and summer in DELAWARE. POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) occurred in Prairie, Toole and Hill Counties, MONTANA, along with many forms of leaf gall-forming insects. Although maples in

Montana were not affected to the honeydew-dripping stage, what was probably NORWAY-MAPLE APHID (Periphyllus lyropictus) attacked these trees in many places over the State. Norway-maple aphid was more abundant and/or damaging than usual in UTAH during 1963, being heavy in many Davis County communities during the summer. PAINTED MAPLE APHID (Drepanaphis acerifoliae) was heavy on many silver maples and cutleaf weeping birch trees in the area during the same period. POPLAR VAGABOND APHID (Mordwilkoja vagabunda) was more abundant and damaging in Utah than normal, but populations were about the same in WYOMING as in 1962, with galls produced by this species being very numerous throughout the State on poplar trees during 1963.

WOOLLY APPLE APHID (Eriosoma lanigerum) was a pest of deciduous shade trees in COLORADO during the 1963 season.

Light infestations of WOOLLY ALDER APHID (Prociphilus tessellatus) appeared on shade trees in Hopkins County, TEXAS, large numbers appeared on maples across TENNESSEE, and infestations of this pest were heavy and general on silver maple in northern GEORGIA. In VIRGINIA, woolly alder aphid was abundant during June and GIANT BARK APHID (Longistigma caryae) was unusually abundant in the Richmond area in late April.

A number of other APHIDS were also of some concern during the 1963 season across the country. Aphid infestations were seasonally typical on maple, oak and linden in RHODE ISLAND, with complaints concerning Lachnus salignus on weeping willow being normal in the spring and fall. Infestations of various aphids were generally heavy on many shade trees during the summer and early fall months in NEW JERSEY. Drepanaphis spp. appeared in enormous numbers on maple trees across TENNESSEE in the fall, and were heavy on red maple in northwest ARKANSAS in late 1963. Several species of aphids were active but less damaging than usual in OKLAHOMA during the season. Drepanaphis spp. were very abundant (averaged 100 per leaf) on sugar maple in Atchison and vicinity, Atchison County, KANSAS, during April, but by mid-May they were satisfactorily controlled by two-spotted lady beetle (Adalia bipunctata).

Infestations of Pterocomma smithiae were rather common on willows in Lower MICHIGAN in September. Unspecified aphids were common on spruce in the Fargo area of Cass County, NORTH DAKOTA, and moderate to heavy aphid populations were encountered on various trees and shrubs over the State during the season. Infestations of Chaitophorus populellus on poplar trees in WYOMING were lower than those present in 1962, with very little damage noticed but large amounts of honeydew found on leaves. Aphids on shade trees in UTAH were more abundant and more damaging than normal during the 1963 season. In NEVADA, infestations of Lachnus salignus were heavy on willow in Clark, Douglas and Elko Counties, and Pterocomma sp. was medium on willow in Mineral and Washoe Counties. Capitophorus hippophaes heavily infested Russian-olive, especially young trees, in Washoe County in October and November.

Aphids infested various hosts throughout the year in CALIFORNIA, with many of the infestations being heavy. Lachnus salignus was unusually heavy and widespread on willows. Prociphilus fraxinifolii and P. fraxinipetalae were heavy on many ash trees over the State, and Prociphilus sp. infested ash trees in Sacramento and Yolo Counties, but was not so prevalent as in 1962. Euceraphis gillettei was locally medium on birch in Santa Barbara County, and Neothomasia populicola was medium on cottonwood in San Luis Obispo County, California. Varying populations of Cinara piceicola were present on coniferous trees in Fresno and Modoc Counties. Myzocallis californicus ranged light to heavy on black oaks in Mendocino County, California, during the 1963 season.

Heavy populations of Lachnus salignus occurred on weeping willow in the Willamette Valley of OREGON in September. In ALASKA, aphids were generally widespread on trees and flowers during the 1963 season, with Rhopalosiphum padi very heavy on most bird cherry trees in the Cook Inlet area and in the Matanuska Valley.

Various SCALE INSECTS were of some concern during 1963 on shade trees over the Nation. OYSTERSHELL SCALE (Lepidosaphes ulmi) was a pest of deciduous shade trees and ornamental shrubs in COLORADO, was locally heavy and injurious to elm, maple and lilac locally in MARYLAND, and was abundant on numerous hosts in PENNSYLVANIA. WHITE PEACH SCALE (Pseudaulacaspis pentagona) was frequently reported in VIRGINIA, was severe on goldenrain-tree, chinaberry, copperleaf and many other hosts in FLORIDA, and damaged chinaberry trees in Panola County, TEXAS. OBSCURE SCALE (Chrysomphalus obscurus) was locally heavy and injurious to various oaks in MARYLAND, but was very light on scarlet oak in Capitol Park in Sacramento, Sacramento County, CALIFORNIA, where the species is now under eradication treatment. GLOOMY SCALE (Chrysomphalus tenebricosus) was locally damaging to soft maples in SOUTH CAROLINA. An ARMORED SCALE (Aspidiotus populorum) was heavy on poplar trees in the Alamogordo area of Otero County, NEW MEXICO, during the 1963 season.

GOLDEN OAK SCALE (Asterolecanium variolosum) infestations ranged light to heavy on oak locally in San Joaquin County, CALIFORNIA, and an OAK KERMES SCALE (Kermes pubescens) continued to be a problem in the oak-growing regions of eastern KANSAS during the 1963 season, where dormant sprays failed to give satisfactory control.

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) occurred in small numbers on common hosts generally over MINNESOTA during 1963, but was extremely heavy on boxelder in Ravalli County, MONTANA. Cottony maple scale was a pest of deciduous shade trees in COLORADO, and caused slight to considerable damage to willow nursery stock at a nursery in northern NEW MEXICO. TULIPTREE SCALE (Toumeyella liriodendri) was local on tuliptrees in San Jose, Santa Clara County, CALIFORNIA, and was taken for the first time on magnolia. This scale insect is under eradication treatment in California. EUROPEAN FRUIT LECANIUM (Lecanium corni) was a considerable pest of California holly in CALIFORNIA during 1963. In VIRGINIA, MAGNOLIA SCALE (Neolecanium cornuparvum) was frequently reported during the season, and OAK LECANIUM (Lecanium quercifex) caused oak twigs to die in SOUTH CAROLINA.

EUROPEAN ELM SCALE (Gossyparia spuria) occurred on elms in many places over CALIFORNIA and was a high nuisance due to the dripping of honeydew. Moderately heavy populations severely damaged American elm in some areas of Albuquerque, Bernalillo County, NEW MEXICO. European elm scale was a pest of deciduous shade trees and shrubs in COLORADO during 1963, and was severe as in the past throughout western KANSAS, with a heavy population in Salina, Saline County, observed killing American elms.

BEECH SCALE (Cryptococcus fagi) was heavy in the Middlebury-Ripton area of Addison County, VERMONT, as well as being present in Stockbridge and Rochester, Windsor County, in Sherburne, Rutland County, and in Johnson and Eden Mills, Lamoille County, during the 1963 season.

A MARGARODID SCALE (Stomacoccus platani) was locally heavy in many locations in CALIFORNIA this season.

Several other Hemiptera were also of some concern during the 1963 season. HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) occurred in Windsor, Windsor County, VERMONT; appeared in eastern MONTANA at Terry in Prairie County, at Glendive in Dawson County, and at Sidney in Richland County; and was a pest of deciduous shade trees and other ornamentals in COLORADO. A PSYLLID (Aleuroplatus coronatus) ranged medium to heavy on oaks in Santa Clara and Calaveras Counties, CALIFORNIA.

A LEAFHOPPER (Texananus gladius) was heavy on African-violet in a collection at Pomona, Los Angeles County, which was a new record for CALIFORNIA. Populations of Empoasca sp. were heavy on elms in Clark and Elko Counties, NEVADA, and several species of LEAFHOPPERS were pests of deciduous shade trees in COLORADO. Several species of leafhoppers occurred on unsprayed chrysanthemums at Bradenton, Manatee County, FLORIDA, with Protalebrella brasiliensis and Graphocephala versuta being the 2 most abundant species.

A SPITTLEBUG (Prosapia bicincta) built up in the Clemson area of SOUTH CAROLINA about August 1 and damaged holly in the area. A 13-year species of Brood XXIII of PERIODICAL CICADAS (Magicicada spp.) appeared in the 35 westernmost counties of TENNESSEE in May. Enormous numbers were present in some of these counties, while local spot infestations were present in other counties.

BOXELDER BUG (Leptocoris trivittatus) appeared all across TENNESSEE during the 1963 season in the largest numbers in many years. Boxelder bug and LEAF-FOOTED BUG (Leptoglossus phyllopus) were pests of evergreen trees in COLORADO during the season. A COREID BUG (Leptocoris rubrolineatus) was a nuisance problem for a good share of the year in CALIFORNIA, on boxelder and other maples, and more than the usual infestations of Leptoglossus sp. were noted in the State during the season.

ASH PLANT BUG (Neoborus amoenus) was numerous on various ash trees in Wibaux and Sweet Grass Counties, MONTANA. Medium to heavy populations of a PLANT BUG (Neoborus pacificus) occurred on ash trees at many locations in CALIFORNIA, and N. illitus occurred in some northern counties in the State. An unidentified species of PLANT BUG caused severe damage to green ash foliage in some south-eastern and western areas of NORTH DAKOTA during the 1963 season.

OAK LACE BUG (Corythucha arcuata) caused heavy damage to oak foliage in eastern areas of NORTH DAKOTA during the season. Unspecified LACE BUGS heavily attacked Quercus gambelii (Gambel oak) locally throughout UTAH during the season.

A STINK BUG (Elasmostethus interstinctanus) was very numerous in the Tanana Valley of ALASKA on birch and poplar but was generally distributed in lesser numbers throughout the interior of the State.

THRIPS were unusually abundant on shade trees in CALIFORNIA during 1963, with Oxythrips sp. infesting Pinus sabiniana in Davis, Yolo County.

WALKINGSTICK (Diapheromera femorata) continued heavy at higher elevations in ARKANSAS during the 1963 season, and unspecified GRASSHOPPERS caused some damage to shade trees in Valencia County, NEW MEXICO.

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) was about normal in VERMONT, but was apparently less troublesome than usual in OHIO because of the cold winter of 1962-1963. GALL MIDGES, Contarinia coloradensis on evergreen trees and Dasyneura spp. on deciduous shade trees, were pests in COLORADO during the season. A FRUIT FLY (Rhagoletis cingulata indifferens) infested Prunus emarginata (bitter cherry) in mountain areas of Humboldt and Siskiyou Counties, CALIFORNIA.

BIRCH LEAF MINER (Fenusa pusilla) infestations and damage ranged moderate to heavy on white and gray birch in most areas of MAINE during the 1963 season, and scattered, light to heavy infestations occurred on ornamental birch in VERMONT. Birch leaf miner adults were active the first week of May in RHODE ISLAND, with the first generation evident statewide but perhaps a little lighter than usual. The second generation was negligible in Rhode Island. Populations of this fly were heavy throughout NEW JERSEY this year. Birch leaf miner was one of the more common pests of nurseries in OHIO, and control is becoming a problem in nurseries in OREGON from Portland to Eugene.

MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) was noted on mountain-ash in a nursery in Johnston, Providence County, RHODE ISLAND, in late June. MAPLE PETIOLE BORER (Caulocampus acericaulis) caused some leafdrop in PENNSYLVANIA. PEAR-SLUG (Caliroa cerasi) was noted in a few VIRGINIA localities during early June, and was a pest of deciduous shade trees in COLORADO during the 1963 season. Caliroa sp. skeletonized the leaves of many oak trees in ILLINOIS, especially in northern and western areas of the State.

A WILLOW LEAF SAWFLY (Pontania sp.) was noted in MONTANA at Columbia Falls (Flathead County), Whitehall (Jefferson County), Butte (Silver Bow County), Shelby (Toole County), Superior (Mineral County), Stanford (Judith Basin County), Augusta (Lewis and Clark County), and at Bozeman (Gallatin County). An unspecified ALDER SAWFLY defoliated alder over a large section in the Susitna area of the Matanuska Valley in ALASKA.

RED-HEADED PINE SAWFLY (Neodiprion lecontei) was a pest of conifers in COLORADO, and caused local, heavy damage to pines in Harris County, TEXAS. A CONIFER SAWFLY (Monoctenus melliceps) fed on ornamental conifers in MISSOURI, and various species of CONIFER SAWFLIES were noted on white pine in NEW HAMPSHIRE with no noticeable defoliation observed in any area.

ELM SAWFLY (Cimbex americana) caused considerable damage to trees in Harris County, TEXAS, and local infestations were reported on elm over NORTH DAKOTA. PIGEON TREMEX (Tremex columba) was a pest of deciduous shade trees in COLORADO, and was reported on several unthrifty maple trees in Providence, Providence County, RHODE ISLAND, at the end of August. A WEB-SPINNING SAWFLY (Neurotoma fasciata) was present on wild cherry in a small, localized infestation on July 16 in Exeter, Washington County, Rhode Island.

A GALL WASP (Dryocosmus palustris) was more abundant than usual on shade trees in OHIO during 1963. Many species of gall wasps were common on oak and hackberry shade trees in TEXAS, and unspecified species attacked oak throughout UTAH during the season.

LEAFCUTTING BEES (Megachile spp.) caused moderate to severe damage throughout ARIZONA during the 1963 season, and light to moderately heavy damage to leaves of various trees in several areas of NEVADA from May through August.

MITES were of concern in various areas of the country during the 1963 season. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused some damage to spruce in in eastern NORTH DAKOTA, and was prevalent as usual on shade trees throughout WYOMING, where damage ranged moderate to severe in some areas. This spider mite occurred statewide on shade trees in CALIFORNIA, but was not so heavy in that State as in past seasons. It infested evergreen and deciduous trees in COLORADO.

The hot, dry weather of the summer in KANSAS was very favorable for large mite populations and many evergreens were severely damaged by populations of Oligonychus spp., mostly O. coniferarum. In COLORADO, Bryobia sp. was a pest of evergreen and deciduous shade trees during the 1963 season. Trees and ornamentals in eastern and central ARIZONA were damaged by moderate to heavy populations of Oligonychus spp. and Tetranychus spp., with spruce trees being particularly damaged in Yuma and Maricopa Counties. Light populations of Bryobia spp. infested miscellaneous hosts in Calaveras County and silver maple in Fresno County, both in CALIFORNIA.

MAPLE BLADDER-GALL MITE (Vasates quadripedes) occurred on soft maple in the Fargo area of Cass County, NORTH DAKOTA, severely infested leaves of maple in some areas of PENNSYLVANIA, and was frequently reported during June and July in VIRGINIA.

An ERIOPHYID MITE (Eriophyes sp.) damaged green ash in Boseman, Livingston, Billings and Missoula Counties, MONTANA, and to a lesser degree at other points in the State. Trees that were insufficiently watered through July and August appeared wilted and droopy where this mite was present. Several species of eriophyid mites were pests of deciduous shade trees in COLORADO during the 1963 season.

Various MITES were heavy on many shade trees in NEW JERSEY during the summer and early fall months.

ORNAMENTAL INSECTS

Highlights:

BAGWORM was troublesome and damaging in Delaware, Maryland, Virginia, Tennessee, Georgia, Alabama, Arkansas and Texas, but was less abundant than in 1962 in Illinois. MIMOSA WEBWORM was damaging to mimosa and honeylocust in the various areas where it occurs and extended its range into two new counties in Illinois. Various WEEVILS caused considerable concern on ornamentals across the country, and ROSE CHAFER was heavy in Maine and caused considerable damage to ornamentals in sandier areas of Wisconsin. APHIDS were troublesome during the season in several areas of the Nation, and numerous SCALE INSECTS infested and often damaged various ornamental hosts during the 1963 season. SPIDER MITES were pestiferous on ornamentals over the country and inflicted varying degrees of damage. ERIOPHYID MITES were also of some concern in a few areas.

Of the numerous Lepidoptera infesting ornamentals during the 1963 season, BAGWORM (Thyridopteryx ephemeraeformis) was the most frequently reported species. First hatching of bagworm eggs in DELAWARE was noted May 27 in New Castle County and first young larvae were found feeding on sycamore in Sussex County on June 10. Populations appeared to be rather high on sycamore trees in the southern portion of Delaware this year. Bagworm caused heavy injury to unprotected arborvitae, juniper and cedar at several places in MARYLAND, and the usual number of inquiries concerning this pest were received in VIRGINIA. Bagworm was a general pest of evergreens across TENNESSEE, infestations were heavy and general on arborvitae in GEORGIA, and the species was one of the most serious pests of ornamental coniferous shrubs and trees in ALABAMA during 1963. Bagworm infestations in ARKANSAS were comparable to those present in the State in 1962, and infestations were of the usual severity in most areas of TEXAS during the 1963 season.

Bagworm was one of the more common pests of nurseries in OHIO during the season. Larvae 0.5 inch long damaged arborvitae in Warrick County, INDIANA, in June, with feeding also noted in Sullivan County. No viable eggs of bagworm were found in central Indiana, probably having been winter killed. Bagworm was much less abundant in ILLINOIS in 1963 than it was in 1962. Bagworm infestations were reported in Hunter, Cass County, NORTH DAKOTA, and the species was a pest of ornamental evergreen shrubs and trees in COLORADO during 1963.

Infestations of a PSYCHID MOTH (Apterona crenulella) ranged medium to heavy on ornamental flowers, shrubs and trees in Eureka County, NEVADA, in June and July, and occurred at a few locations in El Dorado, Butte, Nevada, Plumas, Lassen and Modoc Counties, CALIFORNIA.

MIMOSA WEBWORM (Homadula albizziae) was locally heavy in Chico, Butte County, CALIFORNIA. This is the only known infestation in the State and is under eradication treatment. Mimosa webworm caused heavy damage to honeylocust in southeastern areas of NEBRASKA in July and August and many trees were stripped of foliage. Although this insect has been reported in KANSAS during the winter of 1962-1963, based on a 1961 identification, the first defoliation was observed in Johnson County in July of 1963. Moderate to heavy infestations of mimosa webworm were observed on mimosa and honeylocust in southeast, east central and central areas of MISSOURI, with mimosa heavily infested in the southeast area where defoliation was common. Mimosa webworm did not cause so much damage in ILLINOIS as it has for the past few years. Populations were generally light in the State in 1963, although a few localized infestations did increase, and two new county records were established. The pest also was apparently less troublesome than usual in OHIO, probably due to the cold winter of 1962-1963. Although mimosa webworm was not so severe in 1963 on honeylocust and related varieties of trees in some areas of PENNSYLVANIA, it did remain quite abundant in the western part of the State.

Mimosa webworm infestations were light to moderate in southern counties of NEW JERSEY during the 1963 season. First young larvae of the season were noted on honeylocust in Kent County, DELAWARE, on June 27. While feeding injury was rather heavy on mimosa and honeylocust in most areas of the State, it was not so severe as last season. Infestations of mimosa webworm were again widespread and destructive to mimosa and honeylocust in all sections of MARYLAND, and were present in usual numbers throughout VIRGINIA. Mimosa webworm was one of the most serious pests in central and northern ALABAMA, and infestations were general and heavy on mimosa in GEORGIA.

BEET ARMYWORM (Spodoptera exigua) and CABBAGE LOOPER (Trichoplusia ni) were well controlled by commercial chrysanthemum growers at Bradenton, Manatee County, FLORIDA, up to the time buds showed color, at which time larvae of both species became troublesome. In the Ft. Myers area of Lee County, these pests were fairly abundant on chrysanthemums and only the use of sprays twice a week prevented considerable economic damage. Beet armyworm was severe and much worse on gladioli and difficult to control in Bradenton, Florida. This cutworm severely damaged rosebuds during midsummer in at least 2 south Florida areas, these being Ft. Myers and south from West Palm Beach, Palm Beach County. A rose bud, once injured, is ruined for sale and 4-5 well-known insecticides failed to give satisfactory control at Ft. Myers, even with frequent applications.

STALK BORER (Papaipema nebris) was quite common on flowers over PENNSYLVANIA in 1963. COTTON LEAFWORM (Alabama argillacea) larvae fed on a small ornamental planting of cotton in York County, NEBRASKA, and adults were recovered in light traps in western areas of the State in September.

YELLOW-NECKED CATERPILLAR (Datana ministra) was locally heavy on ornamental Prunus sp. in San Mateo County, CALIFORNIA, and was much less abundant in ILLINOIS in 1963 than it was in 1962. AZALEA CATERPILLAR (Datana major) infestations were heavy on azaleas in south GEORGIA during the season.

PRIVET LEAF MINER (Gracilaria cuculipennella) heavily infested an extensive privet hedge in Narragansett, Washington County, RHODE ISLAND, in early August. Lilac in many locations in MONTANA was rendered unsightly by LILAC LEAF MINER (Gracilaria syringella), and several generations were evident due to the late first frost this year in Montana. Unspecified species of LEAF MINERS mined some aster leaves at Sanford, Seminole County, FLORIDA, but rearing showed a high rate of parasitism by Hymenoptera late in 1963.

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) was a problem on ornamental coniferous trees in COLORADO, and an unspecified WOOLLYBEAR caused considerable damage to ornamentals in Jefferson County, TEXAS, during the 1963 season.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) heavily infested ornamental and seedling pine plantings again in OKLAHOMA from mid-May to late October. This tip moth was active on red pine in nurseries in Middletown, Newport County, and in Wakefield, Washington County, RHODE ISLAND. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) was common in a nursery in Newport County, RHODE ISLAND, in early June, with adult emergence noted June 20.

SPRUCE BUDWORM (Choristoneura fumiferana) was a pest of evergreen shrubs and trees in COLORADO during the season, and Choristoneura sp. heavily infested and damaged dogwood, European sage, lilac, quince, rose and other shrubs in Washoe County, NEVADA, in late May and June.

Several other Lepidoptera were of concern during 1963. JUNIPER WEBWORM (Dichomeris marginella) infestations on ornamental junipers continued to spread in western OREGON, necessitating close inspections and good control measures, and the pest was common in a few localities of VIRGINIA in June and July. Adults of ARBORVITAE LEAF MINERS (Argyresthia spp.) were observed in Kingston, Washington County, RHODE ISLAND, in mid-June, but damage was less than in 1962. A mixed

infestation of PYRAUSTID MOTHS (Pyraustia orphisalis and Pyrausta sp.) caused heavy damage to mint in Barrington, Bristol County, Rhode Island, July 9. Another PYRAUSTID MOTH (Ambia sp.) has necessitated the leatherleaf fern industry in FLORIDA to initiate a spray program to prevent damage from the larvae which bore into plants. LARGER CANNA LEAF ROLLER (Calpodes ethlius) damaged cannas in Tom Green and Brazoria Counties and GRAPE LEAF SKELETONIZER (Harrisina americana) ranged moderate to heavy on Virginia-creeper in Midland County, all in TEXAS.

In CALIFORNIA, locally spotted infestations of OMNIVOROUS LOOPER (Sabulodes caberata) occurred on a few species of ornamentals and a JUNIPER TWIG MOTH (Periploca nigra) was a serious pest of juniper in many locations over the State, with prostrate junipers being more seriously affected.

A PLUME MOTH (Platyptila pica monticola) caused severe damage locally in geranium propagating stock in Los Angeles County, CALIFORNIA. Greenhouse operators in NEW JERSEY reported an increase in infestations by unspecified PLUM MOTHS in geranium cuttings received from out of the State.

Infestations of unspecified TUSSOCK MOTHS ranged light to medium in ornamental bitterbrush in Ormsby and southern Washoe Counties, NEVADA, in May and June.

TIGER SWALLOWTAIL (Papilio glaucus) was a pest of ornamental shrubs in COLORADO during the 1963 season.

Coleoptera were troublesome on ornamentals in some areas of the Nation. ARBORVITAE WEEVIL (Phyllobius intrusus) adults were noted in a nursery in Middletown, Newport County, on June 27 but were otherwise inconspicuous in RHODE ISLAND during 1963. BLACK VINE WEEVIL (Brachyrhinus sulcatus) larvae infested Sedum sp. in Newport, RHODE ISLAND, on April 30, with pupation noted June 11. First adults of this weevil were seen June 27 in Portsmouth, Newport County, with activity being normal for the year.

PINE ROOT COLLAR WEEVIL (Hylobius radicis) larval feeding seriously damage Scotch, red and jack pine plantations in western Lower MICHIGAN, and larvae caused considerable damage to Christmas tree plantings in Adams and Jackson Counties, WISCONSIN. ROSE CURCULIO (Rhynchites bicolor) was common on rose in southeastern NORTH DAKOTA, and DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) damaged Christmas tree plantings in western WASHINGTON in 1963.

Other WEEVILS were also damaging. Sciopithes obscurus caused heavier damage than usual on rhododendrons in Clackamas and Multnomah Counties, OREGON, and Brachyrhinus meridionalis severely injured lilacs in Missoula and Ravalli Counties, MONTANA. A severe infestation of Curculio baculi was reported from the Killdeer Mountains in NORTH DAKOTA. Damage to azaleas by Pantomorus taeniatulus was reported for the first time in SOUTH CAROLINA during the 1963 season.

JAPANESE BEETLE (Popillia japonica) infestations and damage ranged light to moderate on many plants in the Auburn-Lewiston area of Androscoggin County, MAINE, in late July and light populations caused light damage to roses in Cumberland County in early August. Japanese beetle fed on ornamentals in CONNECTICUT during August, but in greatly reduced numbers, and populations were quite low in PENNSYLVANIA. Japanese beetle adults were considerably below normal on various ornamentals in MARYLAND, especially in central and western areas of the State, but were present in usual numbers throughout VIRGINIA during the 1963 season.

ROSE CHAFER (Macrodactylus subspinosus) appeared in heavy numbers in Cumberland and York Counties, MAINE, and fed generally on many plants in late June. Heavy populations were also present in many areas of VERMONT. First rose chafer adults in RHODE ISLAND were seen in Lincoln, Providence County, on May 29 and there were isolated complaints of heavy infestations in several areas of the county during the season; however, activity was less than in 1962. Rose chafer was active on ornamentals in CONNECTICUT in June. Rose chafer commenced feeding in

WISCONSIN in mid-June and caused considerable damage to ornamentals and some crops in the sandier areas of the State. Populations appeared to be more abundant in Wisconsin in 1963 than in 1962. Rose chafer populations in MICHIGAN appeared to be near normal and above the abnormally low level experienced in 1962.

ASIATIC GARDEN BEETLE (Maladera castanea) was uncommon in RHODE ISLAND during the season, but A SCARAB (Euphoria kerni) was found damaging ornamental cactus in Hale County, TEXAS.

BLISTER BEETLES were of some concern in a few Western States. Lytta stygica was a pest of ornamentals locally in Modoc and Siskiyou Counties, CALIFORNIA, and Epicauta sp. was a pest of evergreen shrubs in COLORADO. Several species of blister beetles became troublesome on ornamentals in MONTANA during the 1963 season, with L. stygica infesting honeysuckly locally in Missoula and Broadwater Counties and L. cyanipennis infesting caragana at many locations. Unspecified blister beetles caused some defoliation of caragana throughout NORTH DAKOTA.

An ENGRAVER BEETLE (Ips oregonis) was a pest of evergreen shrubs in COLORADO. In TEXAS, a FALSE POWDER-POST BEETLE (Amphicerus cornutus) damaged bougainvillea in Hidalgo County and a SAP BEETLE (Conotelus mexicanus) infested roses in El Paso County. Unspecified TWIG PRUNERS damaged ornamentals in MISSOURI during 1963 season.

Various APHIDS were troublesome during the 1963 season in several areas of the Nation. GREEN PEACH APHID (Myzus persicae) was severe on chrysanthemum plantings in Watsonville, Santa Cruz County, CALIFORNIA, and continued to be an obstinate pest in greenhouses in PENNSYLVANIA because of its apparent resistance to aphicides used. Green peach aphid infested miniature varieties of carnation at Bradenton, Manatee County, FLORIDA, early in the year, but not standard varieties.

ROSE APHID (Macrosiphum rosae) infestations were moderate on rose in several areas of GEORGIA, and was frequently troublesome on that host in many gardens during most of the season over MARYLAND. CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) infestations were generally very high in DELAWARE this season, especially in New Castle County, and BEAN APHID (Aphis fabae) heavily infested euonymus in Peace Dale, Washington County, RHODE ISLAND, in late May. Small to moderate numbers of APPLE APHID (Aphis pomi) occurred on cotoneaster in the Fargo area of Cass County, NORTH DAKOTA.

Several aphids were troublesome in CALIFORNIA during 1963. OLEANDER APHID (Aphis nerii) was general on oleander and a few Hoya spp. plants in the southern portion of the State; SPRUCE APHID (Aphis abietina) damaged spruce nursery stock in Coloma, San Mateo County; ROSY APPLE APHID (Anuraphis rosea) infested pyracantha shrubs locally in San Diego County; and FOXGLOVE APHID (Acyrthosiphon solani) damaged Jerusalem-cherry, foxglove and pittosporum plants in San Luis Obispo County. Several other species infested various hosts in California during the entire year, with many infestations being heavy. Vesiculaphis caricis, which is not widespread in the State, infested azalea nursery stock in Chico, Butte County; Cinara curvipes infestations were medium to heavy on cedar in many locations over California; Rhopalosiphum conii populations were locally heavy on honeysuckle and Myzus ornatus infested pansy plants in San Luis Obispo County; and Amphorophora nervata was locally heavy on Arbutis unedo in Fresno County.

Unspecified APHIDS were generally widespread on flowers in ALASKA during the 1963 season. WOOLLY APPLE APHID (Eriosoma lanigerum) was a pest of deciduous ornamental shrubs in COLORADO during the season, and the pest persists on pyracantha shrubs in most locations throughout CALIFORNIA and thus is present for infesting apples.

Populations of Rhopalosiphum berberidis were medium to heavy on barberry in Washoe County, NEVADA, in May and July, and Amphorophora nervata was a problem on roses in most areas of NEW MEXICO, especially in the spring. Macrosiphum eoessigi

infestations were prevalent throughout WYOMING during the 1963 season, with some damage inflicted to hollyhock plants; however, populations remained about the same as those in 1962. Neophyllaphis araucariae was collected in FLORIDA on Norfolk Island pine at Port Orange, Volusia County, during 1963 for the first record of the species on the continental United States. Unspecified aphids were generally heavy on many ornamentals during the summer and early fall months in NEW JERSEY.

COOLEY SPRUCE GALL APHID (Chermes cooleyi) was a pest of ornamental evergreen shrubs and trees in COLORADO during the 1963 season.

WHITEFLIES were of some concern during the season. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) was common in several greenhouses in ALASKA as the result of importation by a florist and subsequent distribution to other greenhouses. Whiteflies were generally not so prevalent this season in CALIFORNIA as in the past two years. A few locally heavy infestations occurred on garden flowers and shrubs in the State. Heavy populations of Aleurotrachelus jelinekii were discovered on Viburnum sp. in Tulare County and later in Fresno County, which was not only a first State record for California but a first record for North America. Dialeurodes kirkaldyi, which was collected in 1962 in Key West, FLORIDA, was found in the State in several other areas of Monroe and Dade Counties on morinda and varieties of jasmine. AZALEA WHITEFLY (Pealius azaleae) infested Rhododendron mucronatum in Peace Dale, Washington County, and in Greenville, Providence County, RHODE ISLAND.

Also in FLORIDA, a TREEHOPPER (Umbonia crassicornis), which can be a pest of ornamentals, was reported from the lower east coast area of the State during 1963, but not from the Tampa Bay area nor anywhere else in this latitude since the December 1962 freeze.

POTATO LEAFHOPPER (Empoasca fabae) was one of the more common pests of nurseries in OHIO during the 1963 season.

A PSYLLID (Psylla uncatoides) was a serious pest on acacia and albizia trees in CALIFORNIA during 1963. Heavy populations of Psylla ribesiae occurred on aralia nursery stock in Mountain View, Santa Clara County. Euphyllura arbuti was widespread on madrone trees in coastal northern California and Paratrioza lavaterae was heavy on Lavatera assurgentifolia in San Diego and Santa Barbara Counties, California.

Numerous SCALE INSECTS infested and often damaged various ornamentals during the 1963 season. SAN JOSE SCALE (Aspidiotus perniciosus) was locally heavy and injurious on several Prunus spp. in MARYLAND and caused local damage to shrubs and ornamentals in several sections of Texas and California. PYRIFORM SCALE (Protopulvinaria pyriformis) infested gardenia and Saxifraga sp. locally in Los Angeles County, CALIFORNIA, where the species is subject to eradication.

TEA SCALE (Fiorinia theae) infested camellias in some greenhouses in PENNSYLVANIA during the season. This soft scale severely damaged leaves of Burford holly, camellia and other ornamentals in FLORIDA, but no particular trends differing with previous years were observed.

HEMISPHERICAL SCALE (Saissetia hemisphaerica) infested a few ornamental plants in CALIFORNIA during the 1963 season. Hemispherical scale, BLACK SCALE (Saissetia oleae) and BROWN SOFT SCALE (Coccus hesperidum) were a problem throughout foliage nurseries in FLORIDA during the year.

FLETCHER SCALE (Lecanium fletcheri) eggs began to hatch June 26 in North Kingstown, Providence County, RHODE ISLAND, and an increase in infestation on taxus and juniper was noted in PENNSYLVANIA in 1963. In WISCONSIN, Fletcher scale was abundant on a planting of junipers in Jefferson County, and hatching was noted June 19 in Dane County.

Other soft scales also were of some concern during 1963. In CALIFORNIA, an unusual infestation of Lecanium persicae occurred on Daphne sp. locally in San Mateo County, and Lecanium kunoensis infested pyracantha shrubs locally in Paradise, Butte County. Physokermes coloradensis was a pest of ornamental evergreen shrubs and trees in COLORADO during the 1963 season. Ceroplastes spp. were serious pests of various ornamentals, particularly holly, throughout the year in NORTH CAROLINA; crawlers were noted in mid-June in Wake County and again during the first week of November in Cumberland County. Lecanium sp. was more prevalent on ornamental oak in North Carolina this year, newly emerged crawlers being noted in Union County in mid-May. Wax scales and other soft scales were among the most frequent scale insects submitted for determination in VIRGINIA, and Ceroplastes sp. heavily injured ornamental hemlock and hollies over MARYLAND. Franklinia in Providence, RHODE ISLAND, was heavily infested with what was probably Lecanium sp., and Lecanium excrescens was noted on wisteria and adjacent rose.

EUONYMUS SCALE (Unaspis euonymi) was present in normal abundance on ornamentals statewide in RHODE ISLAND during the 1963 season, heavily injured euonymus locally in MARYLAND, and was frequently reported in VIRGINIA. Euonymus scale was the usual problem on euonymus in NORTH CAROLINA, with crawlers noted in Wake County in March. This armored scale was apparently less common than usual in OHIO because of the cold winter of 1962-1963, but heavy numbers damaged euonymus plants throughout OKLAHOMA from January through June. Euonymus scale damaged shrubs and other ornamentals in one or more areas of TEXAS, and light to heavy populations damaged euonymus plants in the Albuquerque area of Bernalillo County and at Hobbs, Lea County, NEW MEXICO. Homeowners in the State find this pest very difficult to control.

PINE NEEDLE SCALE (Phenacaspis pinifoliae) was a pest of ornamental evergreen shrubs and trees in COLORADO in 1963. This pest was reported on spruce from 9 localities in MONTANA, with infestations also occurring on ornamental pines, especially Mugho and Bristle cultivars. Occasional infestations of pine needle scale were observed on ornamental pine and spruce in eastern areas of NORTH DAKOTA, and the species was a problem in some nurseries in MINNESOTA.

Other armored scales were of some concern during the season. WALNUT SCALE (Aspidiotus juglansregiae) was rather common on holly and dogwood in New Castle County, DELAWARE. CAMPHOR SCALE (Pseudaonidia duplex) was generally abundant and occurred on a wide variety of host plants in the Volusia County area of FLORIDA. CAMELLIA SCALE (Lepidosaphes camelliae) damaged shrubs and other ornamentals in one or more areas of TEXAS, and OYSTERSHELL SCALE (Lepidosaphes ulmi) was active on cotoneaster over NORTH DAKOTA during the season. In CALIFORNIA, heavy populations of ROSE SCALE (Aulacaspis rosae) occurred on roses in a few locations and appeared to be more prevalent than usual; scattered infestations of OLIVE SCALE (Parlatoria oleae) occurred in several counties, but biological control was effective in most instances; and CALIFORNIA RED SCALE (Aonidiella aurantii) infested several species of ornamental shrubs and trees in many locations of the State during the season.

Also in CALIFORNIA, spotted infestations of Diaspis boisduvalii occurred on orchids in Santa Barbara County and the pest infested palm trees in Borrego, San Diego County; Parlatoria camelliae infestations on camellia were scattered in a few locations in California, but other than being unsightly, apparently did little damage to plants; medium infestations of Chionaspis ortholobis occurred on dogwood trees in Sierra County; Aspidiotus degeratus occurred on camellia plants in a few locations; and heavy populations of Aspidiotus ehrhorni occurred on white fir in El Dorado County.

A MINING SCALE (Pseudaonidia clavigera), a camellia pest in FLORIDA, continued to be found in the St. Petersburg area of Pinellas County, where nurseries, when found infested, are quarantined until infestations are cleaned up; plants can be moved after fumigation. Phenacaspis cockerelli severely infested tea-olive, bird-of-paradise, California-flax, palms and other ornamentals during the 1963 season and is building up to more of a problem on ornamentals in Florida.

Lepidosaphes yangicola was noted on Euonymus alatus in several sections of PENNSYLVANIA and oviposition by this armored scale was observed June 18-20 and hatching noted June 28-July 26 in RHODE ISLAND.

AZALEA BARK SCALE (Eriococcus azaleae) infestations were frequently reported in VIRGINIA during the 1963 season.

COTTONY-CUSHION SCALE (Icerya purchasi) was locally damaging to boxwood in SOUTH CAROLINA and caused local damage to shrubs and other ornamentals in one or more areas of TEXAS. Feeding by this margarodid scale severely damaged ornamentals in eastern ARIZONA, particularly in the Globe-Miami area of Gila County. A few scattered infestations of cottony-cushion scale occurred on host shrubs and trees in CALIFORNIA, these infestations serving to sustain colonies of vedalia (Rodolia cardinalis) in the area.

MEALYBUGS caused some local concern during the 1963 season. COCONUT MEALYBUG (Pseudococcus nipae) infestations were heavy on dracaena nursery stock in Santa Barbara County, CALIFORNIA, and LONG-TAILED MEALYBUG (Pseudococcus adonidum) was present in a few locations in the State, with infestations usually heavy. GRAPE MEALYBUG (Pseudococcus maritimus) was one of the more common pests of nurseries in OHIO and was a problem on taxus in nurseries in PENNSYLVANIA. Also in Pennsylvania, Rhizoecus pritchardi was found infesting Saintpaulia sp. roots in a large greenhouse specializing in the growing of this plant. A stubborn infestation of Pseudococcus cuspidatae developed on yew in Wakefield, Washington County, RHODE ISLAND, in mid-June. Rhizoecus leucosomus was collected for the first time in FLORIDA, being taken from Mesembryanthemum sp. at Sanford, Seminole County. Rhizoecus cacticans occurred on cactus roots and in soil on Puya sp. and Anacampseros sp. nursery stock in Los Angeles County, CALIFORNIA. Pseudococcus microcirculus infested orchids locally in Larkspur, Marin County, and Pseudococcus importatus infested the same host in Arcadia and Los Angeles, Los Angeles County. P. microcirculus and P. importatus are subject to eradication treatment in California.

Infestations of a PIT SCALE (Asterolecanium arabidis) were general in northern CALIFORNIA, with several local infestations showing a decline during the past few years. Another PIT SCALE (Cerococcus sp.), which was reported for the first time in FLORIDA a few years ago, continued to be found on hibiscus in a few nurseries in the lower east coast area. No collections have been made of this pest in the St. Petersburg area since the freeze of December 1962.

AZALEA LACE BUG (Stephanitis pyrioides) caused considerable damage to many azaleas this season in DELAWARE, especially in New Castle County, and infestations ranged light to heavy on azalea throughout GEORGIA.

TARNISHED PLANT BUG (Lygus lineolaris) adults were found on chrysanthemums in NEBRASKA in November. HARLEQUIN BUG (Murgantia histrionica) was locally heavy on ornamentals in San Diego County, CALIFORNIA, and infestations of a FALSE CHINCH BUG (Nysius raphanus) occurred on many native hosts in the State.

GLADIOLUS THRIPS (Taeniothrips simplex) infestations were moderate in some eastern area gardens of NORTH DAKOTA during the 1963 season. Heavy populations of CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) occurred on Ficus retusa in Los Angeles County, CALIFORNIA, and is now known to occur from San Diego to Santa Barbara County. WESTERN FLOWER THRIPS (Frankliniella occidentalis) was very prevalent in many locations in California throughout the year. Unspecified THRIPS were unusually abundant on ornamentals as well as native shrubs in California, with many heavy infestations of Liothrips ilex occurring on toyan plants in areas of the State where this shrub grows. Unspecified thrips were unusually serious on roses (affecting the blooms) in SOUTH CAROLINA, and were unusually abundant on various ornamentals during early June in NORTH CAROLINA.

EUROPEAN EARWIG (Forficula auricularia) was a major pest in yards and gardens in many areas of northern CALIFORNIA in 1963. TWO-STRIPED WALKINGSTICK (Anisomorpha

buprestoides) infestations were numerous and heavy on privet, aucuba and other plants in GEORGIA; defoliation was as high as 50 percent in the town of Stone Mountain, De Kalb County.

A POWDER-POST TERMITE (Cryptotermes cavifrons) infested a considerable number of living cabbage palms in Dixie County, FLORIDA, with infestation in trunks of some of the trees being sufficiently extensive to allow wind breakage. A SUBTERRANEAN TERMITE (Reticulitermes sp.) severely injured yew at College Park, Prince Georges County, MARYLAND, in June.

BOXWOOD LEAF MINER (Monarthropalpus buxi) was present in usual numbers in VIRGINIA during the 1963 season. A LEAF MINER FLY (Phytobia maculosa) was very severe in FLORIDA during the year on unsprayed Blue Chip and Iceburg varieties of chrysanthemums, being the most severe in the Bradenton area of Manatee County ever observed. Parasites were at a low level this season, below that of 1962. A CECIDOMYIID MIDGE (Oligotrophus sp.) was one of the more common nursery pests in OHIO. LESSER BULB FLY (Eumerus tuberculatus) was medium in daffodils in Humboldt County, CALIFORNIA.

PEAR-SLUG (Caliroa cerasi) was a pest of ornamental shrubs in COLORADO, and ROSE-SLUG (Endelomyia aethiops) occurred on roses in many areas of MONTANA during the 1963 season. Hatching of a SAWFLY (Macremphytus sp., probably tarsatus) was noted on red-osier dogwood in Peach Dale, Washington County, RHODE ISLAND, on July 24, with fully grown larvae noted on the same host in Kingston and Peace Dale on August 23 and 31, respectively.

PIGEON TREMEX (Tremex columba) was a pest of ornamental shrubs in COLORADO, and ROSE ROOT-GALL WASP (Diplolepis radicum) was troublesome on roses in Fallon, Glacier, Wheatland, Roosevelt and Park Counties, MONTANA.

SPIDER MITES were pestiferous on ornamentals over the county and inflicted varying degrees of damage during the 1963 season. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) infestations occurred on many ornamentals throughout CALIFORNIA, but were not so heavy as in past season. Two-spotted spider mite was a pest of evergreen and other ornamental shrubs in COLORADO, and was prevalent throughout WYOMING as usual on ornamentals. Inflicted damage ranged moderate to severe in some areas of Wyoming and some controls were applied to ornamentals. Two-spotted spider mite continued to be difficult to control in greenhouses in PENNSYLVANIA.

SPRUCE SPIDER MITE (Oligonychus ununguis) was one of the more common pests of nurseries in OHIO this season, and heavy populations of this mite damaged junipers during the summer months at Los Lunas, Valencia County, NEW MEXICO. In CALIFORNIA, EUROPEAN RED MITE (Panonychus ulmi) was heavy on ornamentals in Santa Clara County and populations were variable in other locations within the State.

A number of other spider mites were also of concern during the 1963 season. In CALIFORNIA, Oligonychus coniferarum was heavy on junipers in Sacramento, Sacramento County; Oligonychus platani ranged medium to heavy on pyracantha plants in Yuba and Tulare Counties, and Tetranychus hydrangeae populations were medium on hydrangea in San Diego County. Moderate to heavy populations of Oligonychus spp. and Tetranychus spp. damaged ornamentals in eastern and central ARIZONA, with ornamental spruce trees being particularly damaged in Yuma and Maricopa Counties. Eotetranychus libocedri damaged arborvitae in Albuquerque, Bernalillo County, and E. weldoni caused considerable foliage damage on willows at Artesia, Eddy County, NEW MEXICO. Bryobia sp. was a pest of deciduous ornamental shrubs in COLORADO in 1963. Unspecified spider mites discolored ornamental blue spruce, Pfitzer juniper, arborvitae and other evergreens during the summer in Davis County, UTAH. Infestations of unspecified spider mites varied from light to heavy statewide in NEVADA on various ornamental plants throughout most of the growing season. Tetranychus sp. made unsightly webbing on spruce trees around homes in many locations of MONTANA, especially in shelterbelts in eastern counties.

The hot, dry summer in KANSAS was very favorable for large populations of spider mites and many evergreens were severely injured by Oligonychus spp., mostly O. coniferarum. Tetranychus spp. were active in OKLAHOMA during the season, but less damaging than usual. Commercial chrysanthemum growers at Bradenton, Manatee County, FLORIDA, had good control of spider mites up to the time buds showed color, then these pests became troublesome. Spider mites were responsible for the usual number of complaints in VIRGINIA during the season. Spider mites, as usual, damaged ornamentals in all sections of MARYLAND, especially Oligonychus spp. on hollies and various conifers and Tetranychus spp. on rose, hollyhock, foxglove, Prunus spp. and other ornamentals.

A number of CYCLAMEN MITE (Steneotarsonemus pallidus) infestations were recorded in greenhouses in PENNSYLVANIA during 1963, and heavy infestations of this tarsonemid mite occurred on sweet basil and aralia in local areas of San Mateo County, CALIFORNIA. PRIVET MITE (Brevipalpus obovatus) populations were heavy on aouba, gardenia and azalea nursery stock in Hanford, Kings County, California, and on privet at a few locations over the State.

ERIOPHYID MITES were present in nurseries in MINNESOTA during 1963, their presence being more common on deciduous and coniferous stock during the past few years than heretofore. Damage to terminal growth and leaf mottle were apparent symptoms on broadleaf stock. Dense, heavily sheared coniferous trees appear to favor the development of these pests in Minnesota. An unspecified eriophyid mite was noted along with a leaf gall of unknown species on roses in MONTANA this season. Aculus massalongoi seriously bronzed lilac foliage in Whitman County, WASHINGTON. Triseticus quadrisetus caused light damage to Meyer juniper in nurseries in the Portland area of OREGON throughout the year, necessitating sprays to prevent extensive bud damage.

A BUD MITE (Aceria gilloglii) infested bamboo nursery stock in Ventura and Los Angeles Counties, CALIFORNIA, and infestations of a RUST MITE (Callyntrotus schlechtendali) were medium on rose nursery stock in Ventura County. This last eriophyid mite is widespread in California but seldom causes noticeable damage.

Various unspecified MITES were active in many locations of California during the 1963 season. Weather was such than infestations built up slowly in contrast to the explosive type of more normal years when warm summer temperatures prevailed. Various ornamentals, including cymbidiums and other orchids, and many kinds of garden plants were infested in California during the 1963 season.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 17 April 24, 1964

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C77
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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 April 24, 1964 Number 17

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Larval damage by ALFALFA WEEVIL to alfalfa reported in Delaware, Maryland, Pennsylvania, North Carolina, South Carolina and Georgia; adults active in Ohio, Colorado and Utah. CLOVER LEAF WEEVIL larval damage to clover and alfalfa in Illinois ranged from noneconomic to moderate; larvae reported in Delaware, Missouri, Wisconsin, Nebraska, Kansas and adults active in Utah. (p. 365). Some GREENBUG controls on wheat continue in northwest Oklahoma and in several Texas counties. (p. 367). Survival of EUROPEAN CORN BORER larvae in Dane-Green-Rock County area of Wisconsin 75 percent; mortality averaged 22.5-37.5 in southeast South Dakota and 17.5-40 in east central part of same State. (p. 368). BROWN WHEAT MITE continues troublesome on wheat in Comanche and Clark Counties, Kansas; heavy and damaging to wheat and barley in Canadian County, Oklahoma; and counts 2,000-3,000 per foot in many parts of Texas Panhandle, but apparently causing little damage. (pp. 368-369). Winter survival of CEREAL LEAF BEETLE adults appears to be high in Michigan; approximately 60 percent in favored sites as opposed to 30 percent survival during 1962-63 winter. (p. 369).

Large populations of POTATO PSYLLID causing many potato growers in Maricopa County of Arizona to use multiple control applications. (p. 372).

Survival of EUROPEAN PINE SHOOT MOTH in Wisconsin 20 percent; relatively high compared with 1963. Infestations of PINE NEEDLE SCALE increased in Christmas tree plantations in northern Cayuga County, New York; a problem on pines at Storrs, Connecticut; and severe on Austrian pine at Roy, Weber County, Utah. (p. 374). FOREST TENT CATERPILLAR and another species of tent caterpillar appear to be considerably worse than past several years in Texas. (p. 375).

ROCKY MOUNTAIN WOOD TICK present in unusual numbers in sagebrush desert land areas in southeast Idaho. CLOVER MITE continues a nuisance in homes in several States and invasions of homes by BOXELDER BUG increasing. (p. 379).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

ALFALFA WEEVIL adults in Utah, Colorado and Ohio; LESSER CLOVER LEAF WEEVIL adults in Delaware; STRIPED FLEA BEETLE in southeast Ohio; TARNISHED PLANT BUG adults in Delaware, Pennsylvania, Ohio, Illinois and Nebraska; RAPID PLANT BUG nymphs in Illinois; HESSIAN FLY adults in Kansas; MEADOW SPITTLEBUG nymph in Pennsylvania; ALFALFA CATERPILLAR larvae in Delaware; FORAGE LOOPER larvae in Kansas; ARMYWORM adults in Wisconsin; BLACK CUTWORM adults in Missouri; EUROPEAN RED MITE nymphs in Ohio; PEAR PSYLLA egg laying underway in Massachusetts and Connecticut, and nymphs present April 2 in Washington; APPLE APHID nymphs in Massachusetts and Connecticut; IMPORTED CABBAGEWORM adults in Delaware, Michigan and Pennsylvania; GREEN PEACH APHID (young and alate adults) April 2 in Washington, and hatching underway in Colorado; SARATOGA SPITTLEBUG in Florida; EUROPEAN PINE SAWFLY eggs in Ohio; SPRUCE SPIDER MITE eggs hatching in Maryland; EASTERN TENT CATERPILLAR larvae and tents in Delaware and Maryland; FACE FLY adults in South Carolina on March 27; and an INSIDIOSUS FLOWER BUG (*Orius insidiosus*) in Arkansas.

DETECTION

New State records were a MEALYBUG (*Rhizoecus americanus*) in Florida (p. 376), and a HAIRSTREAK BUTTERFLY (*Incisalia henrici*) in Delaware (p. 381). WESTERN DRYWOOD TERMITE (*Incisitermes minor*) was recorded in Nye County, Nevada; new county record and second record for State. (p. 375).

SPECIAL REPORTS

Quarterly Citrus Insect and Mite Outlook in Florida - April through June. (p. 370).

Potato Psyllid Survey, Spring Breeding Areas of Texas and Southeastern New Mexico. (p. 372). Populations heavy in Big Spring, San Angelo and Del Rio areas of Texas.

Report of Survival of Boll Weevil as Determined by Surface Trash Examinations during the Spring in Alabama and Tennessee. (p. 373). Counts of live weevils per acre appear to be relatively low.

Status of the Screw-worm in the Southwest. (p. 377). Only 3 screw-worm cases reported during the period April 12-18 in Texas.

Summary of Insect Conditions in the United States - 1963

Stored-product Insects (p. 384).
Beneficial Insects (p. 386).
Miscellaneous Insects (p. 390).
List of Contributors (p. 392).

Reports in this issue are for weekending April 17, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-APRIL TO MID-MAY 1964

The Weather Bureau's 30-day outlook for mid-April to mid-May calls for temperatures to average above seasonal normals in the eastern third of the Nation with greatest departures in the Northeast. Below normal temperatures are predicted for the western half of the country except the Far Southwest, with coldest weather in northern portions of the Plains and Rockies. In the intermediate zone, near normal averages are in prospect. Precipitation is expected to exceed normal in all areas lying between the Rockies and the Appalachians except for near to below normal over the Southern Plains. Subnormal amounts are anticipated over the Southwest and near normal amounts in the remainder of the Nation.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING APRIL 20

Changeable spring weather was mostly warm and wet in the eastern half of the Nation, dry in the West, and cool in the northwestern States. At the beginning of the week, heavy thunderstorms advanced eastward along a cold front that extended from a Low centered in Iowa southward to the lower Mississippi River Valley. Showers and thunderstorms occurred ahead of the front bringing generous rains to Mississippi, Alabama, and the southern Appalachians and lighter rains over the rest of the eastern third of the Nation. Strong winds raised dust over Kansas, Oklahoma, and Texas. A few snow flurries occurred over the northern Rocky Mountians. By Tuesday evening, the storm was diminishing and at midweek fair weather prevailed over most of the Nation. By Thursday morning, a major storm was developing over the northern Great Plains and arctic air pushed into Montana and the Dakotas. Northerly winds, freezing temperatures, cold rain, and snow accompanied the storm. Warm humid air flowed northward ahead of the

.(continued on page 382)

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - OHIO - Adults 2 per 50 sweeps on alfalfa near Arabia, Lawrence County; no larvae present. First report of season. (Treece, Lyon). PENNSYLVANIA - Very small larvae present on alfalfa in Westmoreland County on April 14. (Udine). Larvae 1 per 15 alfalfa plants in Armstrong and Butler Counties; some larvae in second stage; few adults noted. (Adams). Hatching in southeast area (Menusan) and south central area (Pepper). DELAWARE - First-stage to half-grown larvae present to common on alfalfa in New Castle and Kent Counties; injury light in most areas. Adults averaged 1-2 per 10 sweeps in some fields in these areas. (Burbutis). MARYLAND - Larvae infesting over 70 percent of alfalfa plants checked in Dorchester and Worcester Counties; noticeable injury evident. Adults averaged 9 per 10 sweeps on alfalfa in Worcester County. (U. Md., Ent Dept.). VIRGINIA - Light larval infestations encountered in one field each of the following counties: Floyd, Grayson, Lee and Russell. Larvae per 10 tips in these 4 fields averaged 6, 7, 10 and 4, respectively. All larvae either first or second instar. No larvae detected in other fields checked in these counties, nor were any found in Scott, Washington, Tazewell and Giles Counties. All eggs examined recently laid. (Tarpley). Larvae averaged 2-3 per tip locally in Culpeper County. (Rowell, Hutcheson; Apr. 7). NORTH CAROLINA - Heavily damaged alfalfa in Caswell, Rockingham, Wake and Franklin Counties; 4 of 10 fields observed in Wake and Franklin Counties in good condition, but rest heavily damaged. One of these fields had 80 larvae per sweep and others had just been treated. Some pupation observed. (Jones, Falter, Mount). SOUTH CAROLINA - By week of April 6, more damage showing up in Laurens County from treated fields than previously reported. Damage noted in farmer field in Anderson County where field research began on April 11. (Tombes). GEORGIA - First to fourth instars observed in 3 northwest area alfalfa fields. All other fields showed no feeding damage. Alfalfa 12-14 inches tall. (Johnson). Larvae 115 per sweep on untreated alfalfa; 2 per sweep on treated alfalfa in Spalding County. (Tippins). UTAH - Adults active in alfalfa at Morgan, Morgan County, and at Uintah, Weber County. (Knowlton). WYOMING - No adult activity found in alfalfa in Big Horn, Hot Springs and Fremont Counties. (Fronk, Marks). COLORADO - Adult emergence underway in Weld County. (Ext. Serv., Boyes).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Half-grown to nearly full-grown larvae averaged 3-4 per clover plant in areas of New Castle and Kent Counties; caused moderate injury. (Burbutis). ILLINOIS - Larval populations per square foot in clover and alfalfa averaged 4.0 in northwest, 14.5 in west, 8.8 in central, 14.9 in west-southwest, 8.7 in east-southeast and 10.4 in southwest district. Few larvae spun cocoons in extreme southern area, but none actually pupated. Damage to clover ranged from noneconomic to moderate. The large decrease in population shown in west and west-southwest districts due in part to an actual decrease and in part to fact that different parts of these districts surveyed this week. Some larvae now dying from disease. (Ill. Ins. Rpt.). WISCONSIN - Larvae ranged from first to third stages in more advanced alfalfa. (Wis. Ins. Sur.). MISSOURI - Larvae 1-2 per alfalfa plant in southeast. (Houser, Thomas, Wood). KANSAS - Occasional larva observed on alfalfa in east central and northeast areas. (Peters). NEBRASKA - Occasional larva present in Lancaster County alfalfa. (Bergman). UTAH - Adults active in alfalfa at Midvale, Salt Lake County. (Knowlton).

AN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Medium populations on alfalfa in Pauma Valley, San Diego County. (Cal. Coop. Rpt.).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - This species and H. nigrirostris (larvae and adults) light on crimson clover in Dallas, Lowndes and Lee Counties. H. meles dominant and apparently laying eggs; some first-stage larvae feeding. (Alsobrook, et al.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - First adults of season noted on alfalfa in New Castle County. (Burbutis).

CLOVER ROOT CURCULIO (Sitona hispidula) - KANSAS - Occasional adult observed on alfalfa in east central and northeast areas. (Peters). ILLINOIS - Curculios, primarily this species, ranged 0-20 (averaged 7.5) per 100 sweeps in clover and alfalfa in southwest district. (Ill. Ins. Rpt.).

STRIPED FLEA BEETLE (Phyllotreta striolata) - OHIO - Light to moderate in red clover in southeast. First report of season. Most abundant flea beetle found in State at present. (Galford, Lyon).

PEA APHID (Acyrthosiphon pisum) - OREGON - Counts on alfalfa in Umapine area ranged 0-20 per tip with 50 percent alates at high infestations. All stages found including second generation from overwintering eggs. (Halfhill). NEVADA - Only occasional specimens found in alfalfa hay fields in Lathrop Wells, Nye County. (Bechtel, Zoller). ARIZONA - Averaged 150-250 per 100 sweeps in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Not a problem in alfalfa statewide; most fields in Dona Ana County appear free of this pest. (N.M. Coop. Rpt.). OKLAHOMA - Continues at generally low levels throughout most of State on alfalfa; ranged 10-250 per 10 sweeps in south central counties with one report of 500 per 10 sweeps from Jefferson County. Limited treatments underway in Payne County. (Okla. Coop. Sur.). ARKANSAS - Averaged 25-30 per sweep of 15-inch net on alfalfa in Pulaski County, central area. Somewhat lower on crimson clover in several southern counties. (Ark. Ins. Sur.). MISSOURI - Average per 10 sweeps 5 in Cape Girardeau County, less than 1 on alfalfa in Perry County and 300 in New Madrid County on hairy vetch. (Houser, Thomas, Wood). Counts 25 per alfalfa plant in Pemiscot County. (Harrendorf). KANSAS - Ranged from a trace to 1,400 per 100 sweeps on alfalfa in east central and northeast districts. Small degree of parasitism (5 percent) noted in Coffey County. (Peters). NEBRASKA - Very few specimens present in southeast areas. (Bergman). WISCONSIN - Nymphs half grown in more advanced alfalfa; relatively high counts in Brodhead area, averaged 2 per leaflet in marginal area of field. Most of feeding occurring on folded leaflets but on higher portions of plants. (Wis. Ins. Sur.). ILLINOIS - Ranged 0-210 (averaged 31.25) per 100 sweeps in clover and alfalfa in southwest district; much lighter in other districts. (Ill. Ins. Rpt.). OHIO - Light on red clover and alfalfa in several southeastern counties; range per 50 sweeps 5 in Morgan County to 25 in Gallia County. No specimens found north of U.S. Route 40. (Lyon). PENNSYLVANIA - Appearing on alfalfa in Armstrong and Butler Counties. (Adams). MARYLAND - Building up rapidly on alfalfa in Eastern Shore counties; ranged 12-50 per sweep. (U. Md., Ent. Dept.). DELAWARE - Increasing rapidly on alfalfa; counts per 100 sweeps averaged 500 in New Castle County and 1,000 in Kent County. (Burbutis). VIRGINIA - Practically none observed in alfalfa examined in Floyd, Grayson, Lee, Russell, Scott, Washington, Tazewell and Giles Counties. (Tarpley).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Heaviest counts averaged 2 per sweep in alfalfa hay fields in Lathrop Wells, Nye County. (Bechtel, Zoller). NEW MEXICO - Winged adults relatively abundant in few fields of alfalfa in Dona Ana County near Texas line. Populations remain light in most fields in northern Eddy County. Few treated fields had to be treated twice to obtain adequate control. (N.M. Coop. Rpt.). OKLAHOMA - Counts remain generally low on alfalfa throughout State. Ranged 0-50 per 10 sweeps (averaged fewer than 25 per 10 sweeps) in south central counties. Ranged up to 1,500 per 10 sweeps in Jefferson County. Counts low in southwest and west central counties. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in Pulaski County. (Ark. Ins. Sur.). KANSAS - None found in east central and northeast areas. (Peters). NEBRASKA - One specimen found in 3 fields surveyed in Howard County; none found in fields checked in Dundy County. Alfalfa growth comparable throughout State. Eggs hatching. (Manglitz, Stevens). WISCONSIN - Eggs hatched in alfalfa at observation site near Brodhead. Counts ranged as high as 12 per leaflet in marginal area of field and averaged about 4 per leaflet. Doubtful if all eggs hatched yet; practically all confined to lower portions of plants. (Wis. Ins. Sur.).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Ranged 0-90 (averaged 30) per 100 sweeps in clover in southwest district. (Ill. Ins. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - First adults of season noted on alfalfa in Kent County areas. (Burbutis). PENNSYLVANIA - Few noted on alfalfa in Butler and Armstrong Counties. (Adams). OHIO - Heaviest populations 1 per sweep in alfalfa near Gallipolis, Gallia County. No adults collected north of U.S. Route 40. (Lyon). ILLINOIS - Adults ranged 0-30 (averaged 5) per 100 sweeps in clover and alfalfa in southwest district. Lighter in other districts. (Ill. Ins. Rpt.). NEBRASKA - Adults occur in very small numbers in southeast area legumes. (Bergman).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults found in alfalfa in southern counties; 2-10 per 100 sweeps in Eddy and Dona Ana Counties. Only an occasional nymph noted. (N.M. Coop. Rpt.). ARIZONA - Averaged 20-30 per 100 sweeps on alfalfa in Graham County. (Ariz. Coop. Sur.). UTAH - Common on roadside weeds at Collinston, Box Elder County; species largely L. elisus. (Knowlton).

RAPID PLANT BUG (Adelphocoris rapidus) - ILLINOIS - First nymphs of season observed in extreme southwestern area. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - PENNSYLVANIA - One nymph found on clover April 14 in Westmoreland County. (Udine).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 30-40 per 100 sweeps on alfalfa in Graham County. (Ariz. Coop. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - WISCONSIN - Adults common in most alfalfa; as high as 8 per 25 sweeps locally in Iowa County. (Wis. Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - DELAWARE - First larvae of season noted on alfalfa in area of New Castle County. (Burbutis). OKLAHOMA - Occasional larvae noted in south central area alfalfa. Adult activity light in most areas. (Okla. Coop. Sur.).

FORAGE LOOPER (Caenurgina erechtea) - KANSAS - A small larva found in alfalfa in Shawnee County; first specimen of season. (Peters).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light, 0-4 per 10 sweeps, on alfalfa in south central area. (Okla. Coop. Sur.).

THRIPS - NEW MEXICO - Light infestations on alfalfa in northern Eddy County; extremely light in Dona Ana County alfalfa. (N.M. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Populations 500-3,000 per foot in isolated area within Randall and Swisher Counties. Some aerial spraying conducted, but Hippodamia convergens (convergent lady beetle) populations increasing rapidly; little damage expected. Greenbug population 1,000 per foot in one Potter County field. Ranged from almost nil to 3,000 per foot in Deaf Smith, Castro and Parmer Counties; however, few fields with this high number. Considerable insecticidal control applied in latter 3 counties - much of which was unnecessary. (Daniels). Occasional specimens found on small grains in Denton and Wise Counties. (Turney, Meisch). KANSAS - Occasionally seen in some wheat in Johnson and Douglas Counties, east central area. Counts less than 20 per 100 sweeps. (Peters). OKLAHOMA - Checks throughout east central, south central, southwest and west central areas show infestations ranged noneconomic to light. Much of wheat jointing with some heading in south central area and threat of damage past. Controls continue in northwest counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - CALIFORNIA - Nymphs and adults light on barley in Chowchilla, Madera County. (Cal. Coop. Rpt.). KANSAS - Found in all wheat and barley examined in east central and northeast areas; ranged from a trace to 100 per 100 sweeps. (Peters). MISSOURI - Averaged 5 per 10 sweeps in Bollinger, Stoddard and New Madrid Counties, southeast. (Houser, Thomas, Wood). ILLINOIS - Ranged 0-90 (averaged 14) per 100 sweeps in wheat in southwest district. None observed in west-southwest district. (Ill. Ins. Rpt.). WISCONSIN - Alates

commenced appearing in rye fields in southern counties; populations insignificant at present. (Wis. Ins. Sur.).

APHIDS - ALABAMA - Continue to feed, damaging and multiplying at an extremely high rate, on crimson clover, vetch and caley peas in Dallas, Lowndes, Macon and Lee Counties. Several hundred per sweep easily collected in many areas. (Alsobrook, et al.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Light infestations appearing on grain sorghum in lower Rio Grande Valley. (Texas Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH DAKOTA - Percent winter mortality of overwintering larvae averaged 37.5 in Clay County, 30 in Lincoln County, 35 in Yankton County, 22.5 in Union County, 17.5 in Minnehaha County and 40 in Moody County. (Hintz). WISCONSIN - Larvae appear to have overwintered reasonably well; 75 percent survival in Dane-Rock-Green County area as of April 16. Of the remaining, 18 percent dead and 7 percent in moribund condition. (Wis. Ins. Sur.). MARYLAND - No pupation as of April 15 on lower Eastern Shore, although many larvae appear ready to pupate. (U. Md., Ent. Dept.). DELAWARE - Pupation of overwintered larvae averaged 7 percent in Kent County. (Burbutis).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Examination of overwintered larvae in Bradley County, south central area, showed that no pupation had occurred to April 17. (Ark. Ins. Sur.).

CORN EARWORM (Heliothis zea) - TEXAS - All stages (first instar through full-grown larvae) reported in moderate numbers, approximately one larva per 3 stalks of sweet corn, in Hidalgo County. (Texas. Coop. Rpt.; Page). ARKANSAS - Moth activity decreased; probably due to cooler nights. Only one moth taken at each trap at Hope (southwest) and Kelso (southeast). Few eggs found on crimson clover in southern area; no larvae observed. (Ark. Ins. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - This species, beet armyworm (Spodoptera exigua) and corn earworm (Heliothis zea) causing light to moderate damage to ears of sweet corn at Plantation, Broward County. (McLean).

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Adults began appearing at Middleton blacklight trap on April 15. Total of 7 caught at that location on April 16. (Wis. Ins. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Counts 0-2 per linear foot in wheat west of Ault in Weld County. (Jenkins). IDAHO - Populations in rangeland areas light to nonexistant in Owyhee and Elmore Counties. (Gittins, ARS personnel).

BLACK CUTWORM (Agrotis ipsilon) - MISSOURI - Adults beginning to fly in Boone County, central area. (Houser, Thomas, Wood).

CUTWORMS - ILLINOIS - Ranged 0-3 (averaged 1.1) per square foot in clover and alfalfa in southwest district, 0-3 (averaged 0.9) in west-southwest district and lighter in other districts. (Ill. Ins. Rpt.).

SOD WEBWORMS (Crambus spp.) - COLORADO - Damaging to lawns in suburban areas of Weld County; some difficulty in control reported. (CACA, Titensor, Ext. Serv., Boyes).

BROWN WHEAT MITE (Petrobia latens) - TEXAS - Moderate, local infestations reported in wheat in Childress County; some controls applied. (Rummel). Counts 2,000-3,000 per foot in many parts of Panhandle, but apparently causing little damage. (Daniels). OKLAHOMA - Light to moderate counts continue in Kiowa, Greer and Harmon Counties; 150-600 per linear foot of row. Heavy and damaging to wheat and barley in Canadian County. (Okla. Coop. Sur.). KANSAS - Continues a problem in Comanche (south central) and Clark (southwest) Counties. Several

reports of mite infested wheat received from Ness County (west central). (DePew). UTAH - Active on winter wheat on dry farms south of Magna, Salt Lake County. (Knowlton).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Present in planted wheat in trace numbers in Kingman, Harper, Comanche, Meade, Gray, Haskell, Seward, Stevens, Hamilton and Ness Counties based on samples collected April 6-9. Samples collected April 13-14 showed trace counts in Shawnee, Anderson and Lyon Counties; one sample from Osage County severely infested. (Somsen, Peters).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Very light infestations present on small grains in Denton and Wise Counties. (Turney, Meisch). Moderate to heavy populations reported from Baylor County wheat. (Rummel).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Adults noted in trace numbers in most wheat examined in east central and northeast areas; ranged 0-250 per 100 sweeps. (Peters).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Winter survival of adults appears to be high; approximately 60 percent in favored sites as opposed to 30 percent survival during 1962-63 winter. Weather conditions will be important factor in influencing relationship between high beetle numbers now and pest problems later this spring and summer. A cooperative suppression program planned again this season. Aerial treatment to be applied where populations highest. (Ruppel, Turner).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Adults ranged 10-110 per 100 sweeps in grass and 0-90 per 100 sweeps in wheat in southwest district. (Ill. Ins. Rpt.).

SEED-CORN BEETLE (Agonoderus lecontei) - KANSAS - Adults flying in large numbers in Finney County on April 10. (DePew). WISCONSIN - Adults appearing in Middleton blacklight trap. (Wis. Ins. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Heavy populations causing damage to corn seedlings in localized areas of Brazos County. (Randolph). FLORIDA - This species, striped cucumber beetle (Acalymma vittata) and southern potato wireworm (Conoderus falli) causing light to moderate damage to at least 20-25 acres of 2,200-acre field of corn having plants 4-8 inches high at Oklawaha, Marion County. (Dekle, Kuitert, Habeck).

WIREWORMS - TEXAS - Moderate, local infestations of undetermined species reported attacking corn in Guadalupe County. (New).

GREEN JUNE BEETLE (Cotinis nitida) - GEORGIA - Larvae heavy in Bermuda grass pasture in Schley County. (Fletcher, Apr. 3).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Moderate numbers of larvae occurred in lawn at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

GRASSHOPPERS - KANSAS - Surveys in Sedgwick, Reno, Pratt and Barber Counties, south central area, yield primarily late instars and adults of overwintering species. Only Melanoplus confusus first instars found to represent first of spring hatch. Overwintering species now adults or late instars include Psoloessa texana, Arphia conspersa, Eritettix simplex, Chortophaga viridifasciata, Pardalophora phoenicoptera and Hadrotettix trifasciatus. (Brusvan). OKLAHOMA - First instars of Melanoplus sp. and Ageneotettix deorum present in Woodward, Beaver and Harper Counties. (Okla. Coop. Sur.). WISCONSIN - Arphia conspersa adults present in Spring Green area and fifth-stage nymph of Chortophaga viridifasciata found in Iowa County. (Wis. Ins. Sur.).

MORMON CRICKET (Anabrus simplex) - OREGON - Emergence of nymphs well along in northern Sherman and Gilliam Counties. Crickets locally abundant in protected

canyons; counts up to 10 per square yard found April 6 and 7. No acreage figures available. (Coleman).

A SAP BEETLE (Meligethes nigrescens) - OREGON - Adults collected on mustard blossoms in Salem area week of April 6. (Goeden).

FRUIT INSECTS

Quarterly Citrus Insect and Mite Outlook in Florida - April through June

This outlook is based on the assumption that weather beyond the period of the current U.S. Weather Bureau's 30-day outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month.

CITRUS RUST MITE (Phyllocoptruta oleivora) population will remain near moderate level until early May. A strong upward trend in June will move population into high range. Infestations will be heavier in cold-damaged groves. A majority of groves will harbor CITRUS RED MITE (Panonychus citri) and about 30 percent of groves will develop important infestations. Most of these will be cold-damaged groves. Increase of TEXAS CITRUS MITE (Eutetranychus banksi) is expected until late June, when a majority of groves will have moderate to heavy infestations. Both Texas citrus mite and citrus red mite can occur as mixed populations; hence, the combined count should be considered when evaluating the potential for causing injury. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) will be of little if any importance. A strong buildup of BLACK SCALE (Saissetia oleae) will start in early May and continue through June. Most cold-damaged groves will have lighter infestations than normal, whereas warm groves will have heavier infestations. GLOVER SCALE (Lepidosaphes gloverii) population will continue at high level with buildup expected on interior leaves and fruit through June. An increase of YELLOW SCALE (Aonidiella citrina) is expected on outer leaves and fruit in all districts. Scattered groves will have important infestations. CHAFF SCALE (Parlatoria pergandii) population will remain near current high level. WHITEFLIES will continue to be above normal abundance with the larval form again reaching a peak in May.

Other species will be at or below average levels and none are expected to be of much importance. (W. A. Simanton).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Large populations noted on citrus throughout Salt River Valley of Maricopa County. (Ariz. Coop. Sur.).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Medium on citrus in nursery in Davis, Yolo County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Overwintering eggs appear to be fewer in number than in previous years at Storrs. (Savos, Apr. 8). PENNSYLVANIA - Eggs abundant on apple in south central area; in black-head stage, which is an early date. Also present on peach, pear and plum in same area. (Pepper). OHIO - Active nymphs noted in commercial orchard near Pedro, Lawrence County, south central; eggs very heavy on many trees. Several trees could not be adequately sprayed due to steep terrain. (Forsythe, Lyon).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Egg laying began April 12 in orchards with southern exposures in western area. (Wave). Adults active and occasional eggs noted on warm, sunny slopes in eastern area April 10. (Whitcomb). CONNECTICUT - Adults noted on pear spurs April 6. Egg laying underway in New Haven, Southington and Storrs April 15. Eggs not numerous, indicating egg laying just begun. (Savos). PENNSYLVANIA - Abundant in pear orchards in southeast area. (Menusan). WASHINGTON - Eggs on pear noted February 21 and first nymphs of season seen April 2 at Zillah, Yakima County. (Capizzi).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Many nymphs now in second stage in western area; about 50 percent of eggs still unhatched. (Wave). CONNECTICUT - Hatching underway at New Haven and Storrs; few young forms found in Southington and Middlefield areas. Should become more numerous as fruit bud development continues. Overwintering eggs appear more numerous this year. (Savos, Apr. 15). PENNSYLVANIA - This and other species appearing on apple in south central area; numbers fewer than normal. (Pepper).

ROSY APPLE APHID (Anuraphis rosea) - PENNSYLVANIA - More abundant than for several years on apple in south central area. (Pepper).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Scattered on stem and bark of pear at Monticello, Jefferson County. (Miller, Apr. 7).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CALIFORNIA - Light on crab apple nursery stock in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Egg masses fairly abundant around Cheshire and appear ready to hatch. (Garman, Apr. 15). Pest appears easier to find this year; growers having trouble in 1963 should be alert this year. (Savos).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Active larva removed from peach tree in Grand Traverse County April 6; temperatue in 50's. (McManus).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - WASHINGTON - Larvae infesting tree crotches, not confined to trunk, at Zillah, Yakima County, February 21. (Johnson).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintered larvae very active in poorly kept pecan orchard in Dallas County. In other orchards, well protected in 1963, no infestation or damage noted. (Alsobrook et al.). TEXAS - Larvae on pecan trees in Denton County range up to three-fourths grown. (Turney, Meisch).

HICKORY SHUCKWORM (Laspeyresia caryana) - GEORGIA - Unusually heavy emergence in Albany area, Dougherty County. (Tedders, Oshorn; Apr. 1).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - GEORGIA - Light on leaves of pecans in Lee County. (Tedders, Apr. 8).

PLANT BUGS - ALABAMA - Early nymphal stages very noticeable on early pecan buds in central counties. (McQueen).

SAWFLIES - GEORGIA - Probably Periclista sp., heavy and spotted on pecans. (Oshorn, Apr. 10). TEXAS - Unspecified species light locally on pecan trees in Mason County. (Garrett).

TRUCK CROP INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - ARIZONA - Continues to cause losses on carrots and other plants in Pinal County. (Ariz. Coop. Sur.).

A WEEVIL (Hyperodes texana) - TEXAS - Surveys of 7 carrot fields in Bexar County showed 6 fields infested, with 50 percent of plants infested in one field. Infestation ranged downward from this level in other fields. (Kennedy, Pelham, Meisch).

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - Some injury noted on few small asparagus spears in areas of New Castle County. (Burbutis).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - OREGON - Adults abundant on mustard blossoms in Marion County week of April 6. (Goeden).

Potato Psyllid Survey, Spring Breeding Areas of Texas and Southeastern New Mexico

The 1964 potato psyllid (Paratrioza cockerelli) survey was completed on April 3. Wild Lycium host plants were late in leafing out in 4 of the 6 areas surveyed, thus delaying the survey. Potato psyllid populations are heavy in the Big Spring, San Angelo and Del Rio areas. Late March information indicates they have increased considerably in the Del Rio area since it was surveyed. Egg deposits are heavy in these 3 areas. (PPC and cooperating agencies).

Potato Psyllid Survey on Overwintering Hosts

Average Number Per 100 Sweeps

State	District	1962	1963	1964
Texas	Big Spring (Howard County)	16	21	255
Texas	San Angelo (Tom Green County)	15	33	155
Texas	Del Rio (Val Verde and Kinney Counties)	2	26	52
Texas	Marathon-Sanderson (Terrell, Pecos and Brewster Counties)	6	29	8
Texas	El Paso (El Paso and Hudspeth Counties)	2	23	25
New Mexico	Las Cruces (Dona Ana County)	0.67	23	9

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POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Large populations causing many potato growers to use multiple control applications in Maricopa County. (Ariz. Coop. Sur.). NEVADA - No adults or eggs found on Lycium spp. examined in extreme southern Clark County; however, light adult population and light to medium egg numbers present on Lycium spp. in Ash Meadows-Beatty area, Nye County. (Bechtel, Hilbig, Zoller).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Increasing, following usual seasonal pattern, at Hastings, St. Johns County; all stages present, but damage caused mainly by young larvae on unsprayed plants. Control good where spray program followed. (Fla. Coop. Sur.). Infested 56 percent of 200 sampled cabbage plants at Sanford, Seminole County; damage light to heavy. (Desin).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Adults common throughout State. (Burbutis). PENNSYLVANIA - Adults flying in south central area. (Pepper). MICHIGAN - Few early spring adults noted flying in Ingham County April 6 when temperatures rose into 60's. (Newman).

DIAMONDBACK MOTH (Plutella maculipennis) - UTAH - Present at Brigham City, Box Elder County. (Knowlton).

OMNIVOROUS LEAF ROLLER (Platynota stultana) - CALIFORNIA - Larvae light on strawberry plants in Selma, Fresno County. (Cal. Coop. Rpt.).

A CUTWORM - GEORGIA - Moderate to heavy on cabbage in Spalding County. (Dupree).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Overwintering eggs in viable condition on early potatoes in Gilcrest area, Weld County, on April 15; deposition moderate to heavy, beginning to hatch. (Simpson, Berry). WASHINGTON - Young forms and apterous adults noted on sugar beets growing on cull piles at beet receiving station at College Place, Walla Walla County, April 2. This is an early record. (Wallis).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light to moderate on cabbage in Brooks and Colquitt Counties. (Johnson, Apr. 11). FLORIDA - Infested 54 percent of 200 sampled cabbage plants at Sanford, Seminole County; damage light. (Desin).

THRIPS - NEW MEXICO - Numbers of unspecified species per onion plant decreased in many fields checked; averaged 1-8 per plant in Mesilla Valley. Scattered, spotted, very light infestations noted in few lettuce fields in same area. (N.M. Coop. Rpt.). ARIZONA - Frankliniella spp. infesting carrots and onions in some areas of Pinal and Maricopa Counties. (Ariz. Coop. Sur.). OHIO - Thrips tabaci light on old onions at Columbus, Franklin County, central area; 2-3 per plant. (Galford).

AN OTITID FLY (Euxesta notata) - COLORADO - Maggots found in recently planted field of carrots in Weld County; no seed damage noted. (Hantsbarger).

A GALL MIDGE - COLORADO - Larvae found in soil of recently planted beet field in Weld County. (Marsh).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Heavy on tobacco in plant bed and in the field. (Johnson, Apr. 8). SOUTH CAROLINA - Present on tobacco in localized areas and causing slight injury. (Nettles et al.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - SOUTH CAROLINA - Infesting tobacco in localized areas; causing slight damage. (Nettles et al.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Abundant in tobacco beds in Calvert County. (U. Md., Ent. Dept.).

COTTON INSECTS

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring in Alabama and Tennessee - Spring collections of surface trash in Alabama were made March 2-4 in Henry County, March 16-18 in Dallas County, March 24-25 in Tuscaloosa County and March 31-April 1 in Morgan County. Each sample consisted of 18 square feet of trash and soil. Three samples were taken from each of 10 farms in the 4 counties sampled. The four counties selected represent a wide variation of climatic conditions in the State. A total of 120 samples were taken. The average number of live boll weevil (Anthonomus grandis) adults per acre of woods trash was 537 in Henry County, 242 in Dallas County, 81 in Tusculoosa County and 0 in Morgan County. The average for the State was 215 weevils per acre. There had been very high weevil population counts in all parts of Alabama for several years until the spring and summer of 1963, although no hibernation survival counts are available. Because of undetermined conditions following the severe winter of 1962-63, boll weevil infestations throughout Alabama were spotted. The first emergence of weevils in June was low and thereby most areas of the State escaped severe infestation buildups during the second and even the third generations. By late fall, weevils had again built up to rather high numbers in most areas of the State except localized areas in a few southern sections and more widespread areas of north Alabama. The winter of 1963-64 was not so severe as the 1962-63 winter and it will probably reflect more widespread, early infestations of boll weevil in the State during the first egg-laying period of May and June as suitable squares develop to support the first generation of 1964 weevils. A survey for these conditions will be made in April, May and June in the four counties surveyed in March. (McQueen, et al.).

A survey was made in McNairy County, TENNESSEE, to determine the population of boll weevil which overwintered in the western portion of the State. This county was chosen for the survey because it usually represents the "hot spot" of weevil infestations for the following counties: Hardin, McNairy, Hardeman, Fayette and Shelby. The fall trash examinations indicated that the average number of weevils per acre was 1,089. The spring examinations of cotton field environ trash taken March 17-31 indicated that there were 242 weevils per acre, with 10 percent survival. This is a relatively low number of weevils to overwinter in the southern counties. Spring survival counts in the spring of 1963 were 1,412 live weevils per acre. Even though the 1964 counts are low, with a wet season, there could be

some damage over the regularly weevil infested portion of the cotton-growing area. It is expected that the infestations will be spotted as was the case in 1963. (Locke).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Light numbers appearing on cotton in lower Rio Grande Valley. (Texas Coop. Rpt.). ARIZONA - Small numbers appearing on seedling cotton in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

BLACK FLEAHOPPERS (Spanogonicus spp.) - ARIZONA - Appearing in fields of seedling cotton in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Analysis of data from examination of pine samples for overwintering mortality, revealed a 20-percent survival. This is relatively high compared with year before. Populations would appear higher in Manitowoc, Sheboygan and Kewaunee County areas than in more southerly lake-bordering counties. (Wis. Ins. Sur.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MARYLAND - Pupae ranged moderate to heavy in young loblolly pines in Wicomico County and in Virginia pines at Bowie, Prince Georges County. (U. Md., Ent. Dept.).

PINE NEEDLE MINER (Exoteleia pinifoliella) - MARYLAND - Heavy in stands of Virginia pine near Lanham, Prince Georges County. (U. Md., Ent. Dept.).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Defoliating fir trees in Fieldbrook, Humboldt County. (Cal. Coop. Rpt.).

A TWIG MOTH (Dioryctria ponderosae) - CALIFORNIA - Pupae present on shoots of Monterey pine in Sacramento, Sacramento County. Adults emerged April 6 in San Francisco. (W. Bemis, CDF).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Heavy on Colorado blue spruce nursery stock in Reedley, Fresno County, and in Redwood City, San Mateo County. (Cal. Coop. Rpt.). OREGON - Winter feeding damage very pronounced on needles of Colorado blue spruce in Multnomah County nurseries. (Larson).

WHITE-PINE APHID (Cinara strobi) - OHIO - Remains of many eggs noted on few white pines near Johnstown, Licking County, central area; ranged 8-14 per needle. (Lyon).

PINE APHIDS - ALABAMA - Eulachnus rileyi and Cinara osborniana very light on pines in Montgomery, Tuscaloosa, Chilton and Lee Counties. E. rileyi was reported from these areas in extremely large numbers during December 1963, with C. osborniana also present in much smaller numbers. Det. by L. M. Russell. (McQueen). See CEIR 13(48):1365, 13(50):1395 and 13(51):1407. CALIFORNIA - Essigella californica medium on pine trees in Vista, San Diego County. (Cal. Coop. Rpt.).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - FLORIDA - First specimen of season taken in blacklight trap at Gainesville, Alachua County, April 13. (Perry).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW YORK - Infestations in Scotch pine Christmas tree plantations in northern Cayuga County increased over 1963; one grower near Martville unable to market any trees in 1963 due to approximately 90 percent infestation on one 4-acre area. (N.Y. Wkly. Rpt., Apr. 13). CONNECTICUT - A problem on pines at Storrs. (Savos, Apr. 15). UTAH - Severe on Austrian pine at Roy, Weber County. (Knowlton).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Eggs observed on Scotch pine Christmas tree planting near Lisbon, Columbiana County, northeast. Eggs appear more difficult to locate this year compared with one year ago; however, spray program used in planting last year. (Neiswander).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Eggs hatching on Norway spruce and Pfitzer juniper at College Park, Prince Georges County, April 12. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - First larvae and small tents of season noted April 13 on wild cherry in eastern Kent County. (Burbutis). MARYLAND - First tents of season noted April 15 on Prunus sp. at Salisbury, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Young larvae common on flowering crab apple in Kempsville area of Virginia Beach; first infestation of season. (Sims, Apr. 13). Tents becoming noticeable in Montgomery, Floyd, Carroll, Grayson, Washington, Scott, Lee, Russell, Tazewell and Giles Counties. (Tarpley). GEORGIA - Larvae moving from wild cherry to rose in Spalding County. (Tippins). ARKANSAS - Nests 4-6 inches in diameter observed in upper Arkansas River area. (Ark. Ins. Sur.). OKLAHOMA - Defoliation of native and domestic fruit trees occurring throughout State. (Okla. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - This species and Malacosoma sp., probably tigris, continue to damage live oak and ash trees over most of State. Infestations appear considerably worse than in past several years. (Texas Coop. Rpt.). ALABAMA - Larvae, apparently second and third stages, quite heavy on gum trees in Mobile County area. (Bolton, Seibels). FLORIDA - Light on oak at Dunnellon, Marion County, April 6. (Adkins). VIRGINIA - Larvae noted on cherry-laurel at a location in Chesterfield County; eggs hatched April 3. (Matheny).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - NEVADA - Medium larval numbers present on Prunus fasciculata (desert peachbrush) in Goodsprings area, Clark County. (Hilbig).

SPRING CANKERWORM (Paleacrita vernata) - MICHIGAN - Adult females still active April 5 in Livingston and Ingham Counties. (Newman). MINNESOTA - Moths, tentatively determined as this species, numerous at an unspecified location evening of April 15. (Minn. Ins. Rpt.). NORTH DAKOTA - Light emergence of male adults continues in southeast; small numbers of adult females observed in Fargo area, Cass County. (N.D. Ins. Sur.).

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Few adult females collected April 5 in Ingham County. (Maki).

A NOCTUID MOTH (Oncocnemis punctilinea) - NEVADA - Larvae heavily damaging ash trees in Ash Meadows area, Nye County; some trees almost defoliated. (Bechtel, Zoller).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEBRASKA - Present in pupal stage in Lincoln, Lancaster County. (Guinan).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - NEVADA - Medium in partly dead leatherleaf ash (Fraxinus velutina) in Ash Meadows area, Nye County. This is first record for Nye County and second record for State. (Bechtel, Zoller).

A SOFT SCALE (Lecanium sp.) - TEXAS - Reported from wide area of State on various hosts, but oak appears to be predominant. (Meisch).

A GALL WASP (Callirhytis cornigera) - NEW YORK - Ready to emerge in Erie and Niagara Counties, western area. Emergence from galls taken into room temperatures occurred within several days. Infestation very severe on pin and red oaks at Grand Isle in Buffalo; branches literally covered with galls over entire trees. Galls continuous on branches for over 1-foot length of twig in some instances. (N.Y. Wkly. Rpt., Apr. 13).

AZALEA LEAF MINER (Gracilaria azaleella) - ALABAMA - Very active and mining azalea leaves in cold frames and beds under lath at Semmes, Mobile County. (Seibels).

A PYRALID MOTH (Herculia phoezalis) - CALIFORNIA - Larvae and pupae medium on Italian cypress on Point Hueneme Naval Base, Ventura County. (Cal. Coop. Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Larvae causing extensive damage to lawns in Elmira, Chemung County. (N.Y. Wkly. Rpt., Apr. 13).

APHIDS - CALIFORNIA - Amphorophora ceanothi adults infesting Ceanothus cordulatus in El Dorado, El Dorado County. Toxoptera aurantii light on camellia plants in a Reedley nursery, Fresno County. (Cal. Coop. Rpt.). ARIZONA - An undeterined aphid damaging roses and bedding plants in nurseries and home plantings in Maricopa County, and Hysteroneura setariae infesting ornamentals in many areas of county. (Ariz. Coop. Sur.). OKLAHOMA - Several species becoming increasingly active on variety of ornamentals across State. Cinara tujafilina heavy on arborvitae in Jefferson County, south central. (Okla. Coop. Sur.). FLORIDA - Aphis gossypii severe on leaves of hibiscus and Aphis spiraecola moderate on leaves of viburnum at Fairvilla, Orange County. (Griffith, Apr. 3). MARYLAND - Unspecified species infesting azaleas at Carrollton, Prince Georges County, and swamp maple at Crumpton, Queen Annes County. Aphis pomi heavy on buds and new leaves of several flowering crab apple trees at Carrollton. (U. Md., Ent. Dept.). DELAWARE - Aphis pseudohederae adults and nymphs common on new terminal growth of Boston ivy in area of New Castle County. (Burbutis).

COCCIDS - CALIFORNIA - Aspidiotus degenerata heavy on camellia plants in Princeton, Colusa County, and A. degenerata and Parlatoria camelliae heavy on camellia plants in Trowbridge, Sutter County. Parlatoria oleae and Aspidiotus juglansregiae medium on Modesto ash planting stock in Santee, San Diego County. Aonidiella citrina light on viburnum leaves in Sacramento, Sacramento County. Aspidiotus camellia adults heavy on leaves and twigs of holly nursery stock in Fairfield, Solano County, and A. perniciosus adults heavy on cotoneaster in Martinez, Contra Costa County. (Cal. Coop. Rpt.). ALABAMA - Toumeyella liriodendri on tulip-trees and Unaspis euonymi and Fiorinia theae on Burford holly and camellia locally in Montgomery and Lee Counties. (Barwood et al.). Lepidosaphes newsteadi, along with undetermined spider mites and arborvitae blight, causing considerable damage to few isolated arborvitae plants in Jefferson County. (McGlohon). Eriococcus azaleae heavy on azaleas in Walker County; seriously damaged home planting. (Keeble). SOUTH CAROLINA - Egg laying by Fiorinia theae noted on camellia at Clemson March 31. (Farrar).

MEALYBUGS - FLORIDA - Adults of Rhizoecus americanus collected on Dieffenbachia sp. at Fern Park, Seminole County, on March 6, 1964, by C. O. Youtsey. Det. by R. F. Wilkey. This is a new State record. R. americanus is a root inhabiting species. (Fla. Coop. Sur.). CALIFORNIA - Rhizoecus cacticans medium on "Rubra Ray" nursery stock (succulent plants) in Santa Cruz, Santa Cruz County. Pseudococcus adonidum medium generally in greenhouse in La Jolla, San Diego County. (Cal. Coop. Rpt.).

WHITEFLIES - ALABAMA - Nymphs of unspecified species heavy on isolated plantings of gardenias in Dallas County. (Alsobrook et al.). Aleuroplatus ilicis nymphs very heavy on cherry-laurel in Lee County. Det. by L. M. Russell. (McQueen).

TWO-STRIPED WALKINGSTICK (Anisomorpha buprestoides) - ALABAMA - Continues feeding on azaleas and causing much concern among nurserymen at Semmes, Mobile County. (Seibels).

ERIOPHYID MITES - MASSACHUSETTS - Aceria paradianthi serious on carnation over large range in Woburn, Middlesex County. First report from this area in over a year. (Whitcomb). NEW YORK - Probably Triseticus sp. active and abundant in needle sheaths of Scotch pine at Ithaca, Tompkins County. Nalepella tsugifolia, leaf vagrant on hemlock, active and hatching from overwintering eggs at Poughkeepsie in Hudson Valley; has been extremely abundant during early spring and late fall for past 2 years, especially in nurseries on Long Island. (N.Y. Wkly. Rpt., Apr. 13). FLORIDA - Acaphylla steinwedeni moderate on leaves of camellia at Orlando, Orange County. (Griffith, Apr. 7).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - Moderate to heavy on Chrysanthemum sp. at Ft. Lauderdale, Broward County. (McLean, Apr. 8). ARIZONA - Heavy populations causing considerable damage to evergreens, roses and other ornamentals in Maricopa County. (Ariz. Coop. Sur.).

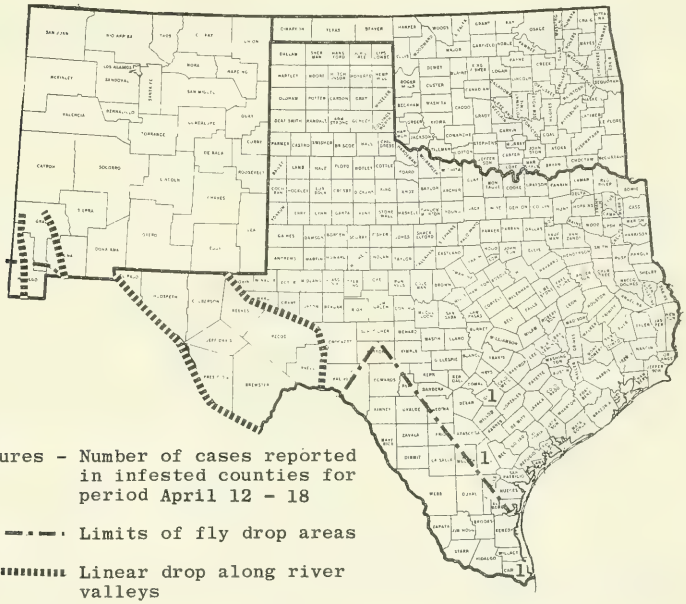
SPIDER MITES (Oligonychus spp.) - CALIFORNIA - Oligonychus sp., near milleri, medium on juniper nursery stock in Arlington, Riverside County. O. subnudus light on Italian cypress trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

SLUGS - GEORGIA - Heavy on cannas in De Kalb County. (Vanderford, Apr. 7).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period April 12-18, only 3 screw-worm cases were reported from TEXAS. To this date this year, 22 cases of screw-worm have been submitted for identification. During this same period last year, 456 screw-worm cases were reported. A total of 83,283,450 sterile screw-worm flies was released during this period: Texas received 18,454,250, New Mexico 810,000 and the Republic of Mexico 64,019,200. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 12 - 18

Limits of fly drop areas

Linear drop along river valleys

MOSQUITOES - FLORIDA - Light trap catches of salt-marsh species increased sharply first week of April in Lee County. Highest count for Aedes taeniorhynchus was 420 females per trap night and 19 for Aedes sollicitans, both on April 7. Fresh water species continued more numerous in traps in northern part of State, with highest counts being 252 on April 3 and 102 on April 7, both at Santa Rosa, Walton County. (Fla. Coop. Sur.). Aedes sollicitans annoying humans at Guana Wildlife Management area, South Ponte Vedra Beach, St. Johns County. (Mead). Culex salinarius, Aedes canadensis and Psorophora horrida taken in small numbers biting humans in a Gainesville suburban area, Alachua County. (Mead, Apr. 11). ALABAMA - Aedes sollicitans very heavy in coastal areas of Mobile County. Culex pipiens quinquefasciatus appearing in light numbers in east central counties. (Seibels, Barwood, et al.). WISCONSIN - Culex pipiens adults appearing in Dane County area. (Wis. Ins. Sur.). MINNESOTA - Hibernating adults of Culiseta inornata active on warm days. Larvae of Aedes stimulans, Aedes implicatus, Aedes excrucians, Aedes fitchii and Aedes cinereus collected in Minneapolis-St. Paul area; most in first and second stages; some fourth stage present. Earliest larval collection made April 6. (Minn. Ins. Rpt.). UTAH - Few adults of unspecified species reported in northern counties; 90 percent of larvae on Great Salt Lake Front in Weber County are Aedes dorsalis and spraying underway for past 30 days. (Knowlton, Fronk).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Present in backs of cattle throughout Summit County; sometimes numerous in younger stock. (Knowlton). NORTH DAKOTA - Some larvae remain in backs of cattle in south central and southwestern areas. Numbers varied from none to heavy on individual animals; averaged in low medium range. Many grubs have dropped. Both H. bovis and H. lineatum taken in State. (N.D. Ins. Sur.). OKLAHOMA - Considerable adult activity by H. lineatum continues in Payne, Woodward and Harper Counties. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 50-75 per head in Payne, Woodward and Harper Counties. (Okla. Coop. Sur.). GEORGIA - Averaged 2.05 per head on 108 Hereford cattle in Putnam County April 7. Averaged 30 per head on herd of Hereford cattle in Pike County April 15. (Roberts).

FACE FLY (Musca autumnalis) - SOUTH CAROLINA - Numerous males observed on sunny side of building and 3 females on copula March 27 in northern Oconee County. About 10 other buildings and herds checked, but negative. First activity of season. (Henson, Seawright, Adkins).

HOUSE FLY (Musca domestica) - UTAH - Present in cattle feed yards in Ogden-Hooper area, Weber County. (Knowlton).

SHEEP KED (Melophagus ovinus) - OHIO - Sheep shearers in central area report populations lower than in 1963; however, quite abundant on few flocks. (Kramer).

CALLIPHORID FLIES - WISCONSIN - Unusually abundant and causing considerable annoyance in houses. Large numbers present on freshly cut elm stumps and common in Middleton blacklight trap. (Wis. Ins. Sur.).

MIDGES - NORTH CAROLINA - Unspecified species breeding in oxidation pond at poultry processing plant in Lincoln County. Numerous enough to annoy residents in vicinity. (Ashton).

CATTLE LICE - UTAH - Common in Summit County beef herds not yet treated. (Knowlton). SOUTH CAROLINA - Unusually active on unsprayed herds. (Nettles et al.). GEORGIA - Solenopotes capillatus averaged 5.45 per animal in herd of 108 Hereford cattle in Putnam County. (Roberts, Apr. 7). Linognathus vituli infested herd of Hereford cattle in Pike County; averaged 1 per square inch. (Johnson).

BED BUG (Cimex lectularius) - UTAH - Infesting buildings of labor camp near Trementon, Box Elder County. (Knowlton).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - IDAHO - Unusual numbers present in sagebrush desert land areas in southeast part of State. Heaviest infestations noted in area just east of Mountain Home, Elmore County, averaging 15 per person per day. Lesser numbers found in Rattlesnake area south of Mountain Home and in Sailor Creek area south of Glenns Ferry. (Manis; ARS personnel).

EAR TICK (Otobius megnini) - TEXAS - Light locally on livestock in Eastland County. (Cooper).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Medium on clover lawns and entering residences in Fresno, Fresno County. (Cal. Coop. Rpt.). NEVADA - Continues a nuisance to homeowners in southern Washoe County. (Lauderdale). UTAH - Present in several homes at Brigham City, Box Elder County. (Knowlton). KANSAS - Annoying homeowners in Garden City, Finney County, southwest. Springlike weather during past several weeks undoubtedly increased activity. (DePew). MARYLAND - Numerous on outsides of several homes in Calvert and Prince Georges Counties. (U. Md., Ent. Dept.). VIRGINIA - Annoying at locations in Emporia, Greensville County, and in Catlett, Fauquier County. (Rowell, Jennings, Tudor). NORTH CAROLINA - A nuisance at a Hertford County location. (Langdon, Mount).

BOXELDER BUG (Leptocoris trivittatus) - VIRGINIA - Adults abundant in and around homes at locations in Northumberland, Montgomery and Floyd Counties. (Rowell, Coggsdale, Talley). MARYLAND - Troublesome at a location in Spencerville, Montgomery County, April 9. (U. Md., Ent. Dept.). PENNSYLVANIA - Warmer weather caused increased activity in homes in southern half of State. (Pepper). MINNESOTA - Reported from several locations in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

BLACK CARPET BEETLE (Attagenus piceus) - PENNSYLVANIA - Numerous on seventeenth floor of office building in Harrisburg, Dauphin County. Suspected of breeding in debris above false ceiling. (Simons). Large numbers noted about windows in home in Indiana County. (Udine). MARYLAND - Larvae found in kitchen of home in Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). ALABAMA - Light infestations reported in few homes in southern Mobile County. (Seibels). WYOMING - Probably this species, light in home in Cheyenne, Laramie County. (Spackman).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - MICHIGAN - Adults reported in homes in Genesee and Ingham Counties recently. (Cole).

ELM LEAF BEETLE (Galerucella xanthomelaena) - TEXAS - Heavy, local populations annoying around homes in Titus County. (Neal). VIRGINIA - Adults common in homes in Emporia, Greensville County; Salem, Roanoke County; Locust Grove, Orange County; and Mt. Holly, Westmoreland County. (Rowell, Jennings, Estes, Dawson).

COCKROACHES - MARYLAND - Supella supellectilium infested home at Rockville, Montgomery County, April 9. Blatta orientalis nymphs found in attic and other parts of house at College Park, Prince Georges County. (U. Md., Ent. Dept.).

ANTS - OREGON - Winged forms of Prenolepis imparis abundant in and around homes in western area; many inquiries received. (Larson). MARYLAND - Workers of unspecified species troublesome in Baltimore home. Acanthomyops interjectus winged forms appeared in homes in Prince Georges County and at Baltimore. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES - CONNECTICUT - Reticulitermes spp. continue to swarm statewide. (Savos, Apr. 15). PENNSYLVANIA - Reticulitermes flavipes swarming in building at Manada Hill and in greenhouse at Middleton, Dauphin County, April 11. (Simons, Quackenbush). Several incidences of R. flavipes swarming reported from western part of State. (Udine). NEW JERSEY - Swarmers of unspecified species

very active in all areas. (Ins.-Dis. Newsltr.). VIRGINIA - Unspecified reproductive forms noted in Cumberland, King George, Franklin and Madison Counties. (Rowell, Seay, Hall, Tucker, Owings). NORTH CAROLINA - Alates of R. flavipes noted April 14 in Pitt County. (Kilpatrick, Mount). ALABAMA - R. flavipes emerging in great numbers from homes, storage buildings, gasoline stations, fence posts, dead trees and many other wood structures in Dallas, Lee and other central counties. (Baker, Alsobrook et al.). UTAH - Unspecified species infesting another home and garage at Logan, Cache County. (Knowlton).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - CALIFORNIA - Infesting building in La Canada, Los Angeles County. (Cal. Coop. Rpt.).

CARPENTER ANTS (Camponotus spp.) - MINNESOTA - Winged forms reported from several locations in Minneapolis-St. Paul area. (Minn. Ins. Rpt.). CALIFORNIA - Heavy population of C. hyatti damaging residence in San Jose, Santa Clara County, by building nests between walls. Carpenter ant infestations have been reported more frequently during past 2 years than for many years previous. (Cal. Coop. Rpt.).

POWDER-POST BEETLES - ALABAMA - Lyctus africanus causing considerable damage to bamboo curtains in Mobile County home. As far as is known, this is first report of this species from State. Det. by T. J. Spilman. (Seibels, Bolton). UTAH - Unspecified species damaged floor and supporting timbers of older home at Logan, Cache County. Also damaged 8 new homes at Garland, Box Elder County, particularly hardwood floors. (Knowlton).

BENEFICIAL INSECTS

LADY BEETLES - OREGON - Mostly Hippodamia spp., ranged 0-8 per collection of 60 alfalfa tips in 8 fields in Umapine area, Umatilla County. (Halfhill). NEW MEXICO - Adults of unspecified species becoming numerous in alfalfa and small grains in Dona Ana, Eddy and Chaves Counties; often as high as 16-50 per 100 sweeps. (N.M. Coop. Rpt.). ARKANSAS - Reproduction of several species well underway in legumes in southern area, with nearly full-grown larvae present. (Ark. Ins. Sur.). MISSOURI - Adults of Coleomegilla sp. and Hippodamia convergens noted on hairy vetch and small grains in southeast. (Houser, Thomas, Wood). KANSAS - Few H. convergens noted in wheat, barley and alfalfa in east central and northeast areas. (Peters). NEBRASKA - Hippodamia spp. adults common in Dundy and Howard Counties, and in eastern part of State. (Manglitz, Stevens, Bergman). WISCONSIN - Adults becoming more common. Chilocorus stigma observed on elm stumps in Rock County. H. convergens appearing in some alfalfa. Hippodamia parenthesis common in field of alfalfa at Brodhead, Green County, where aphids numerous; counts as high as 3 per alfalfa clump; mating noted. (Wis. Ins. Sur.). OHIO - H. convergens easily collected in alfalfa and red clover fields in southeast; many adults noted feeding on pea aphid. (Galford, Lyon). MARYLAND - H. convergens adults abundant in field of alfalfa at Easton, Talbot County. (U. Md., Ent. Dept.). VIRGINIA - H. convergens observed in fields in Washington and Giles Counties; mating observed in Giles County field. Single specimen of Coleomegilla maculata observed in Lee County. (Tarpley).

GREEN LACEWINGS (Chrysopa spp.) - ARKANSAS - Few adults being noted in legumes; no eggs or larvae found. (Ark. Ins. Sur.). NEW MEXICO - Adults becoming noticeable in small grains and alfalfa in Dona Ana, Eddy and Chaves Counties. (N.M. Coop. Rpt.).

DAMSEL BUGS (Nabis spp.) - MISSOURI - Small numbers of adults found in southeast area. (Houser, Thomas, Wood). KANSAS - Small numbers noted in wheat, barley and alfalfa in northeast and east central areas. (Peters). NEW MEXICO - Adults becoming numerous in Dona Ana, Eddy and Chaves Counties on alfalfa and small grains. (N.M. Coop. Rpt.).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - First collections of season made in crimson clover in Bradley County, south central. (Ark. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Only adults present in small numbers in legumes in southern area. (Ark. Ins. Sur.).

SYRPHID FLIES - NEW MEXICO - Numerous adults noted in small grains and alfalfa in Dona Ana, Eddy and Chaves Counties. (N.M. Coop. Rpt.). MISSOURI - Larvae of unspecified species feeding on pea aphid on alfalfa in Pemiscot County, southeast. (Houser, Thomas, Wood).

HONEY BEE (Apis mellifera) - WISCONSIN - Gathering pollen, primarily from red maple and alder. (Wis. Ins. Sur.).

BRACONID WASPS - MASSACHUSETTS - Aliolus curculionis emerged from 2 percent of carrot weevil (Listronotus oregonensis) larvae collected at Concord, Middlesex County. Det. by C. F. W. Muesebeck. According to U.S. National Museum records, this is new host of this parasite. (Whitcomb). KANSAS - Small numbers of unspecified species noted in wheat, barley and alfalfa in east central and northeast areas. (Peters). OREGON - Adults of Aphidius sp. ranged 2-5 per collection of 60 alfalfa tips in 8 fields in Umapine area, Umatilla County. (Halfhill).

MISCELLANEOUS INSECTS

SAWFLIES - OHIO - Heavy numbers of unspecified species noted on laundry near Mantua, Portage County, northeast (Custer, Apr. 12); 4-5 sawflies per 25 sweeps collected in old field of wheat near Wooster, Wayne County, northeast (Lyon). Two species frequently collected throughout northeast during past 2 weeks. (Lyon). WISCONSIN - Adults of Dolerus unicolor and D. similis common along roadsides and prevalent on surface of freshly cut elm stumps in Rock County. (Wis. Ins. Sur.). PENNSYLVANIA - Dolerus sp. adults numerous and flying over grass and about building in Manada Hill, Dauphin County (Simons, Apr. 11); also flying in hay fields in Butler and Armstrong Counties (Adams).

WHITE-FRINGED BEETLES (Graphognathus spp.) - FLORIDA - Larvae light on plants along shoulder of highway 2-3 miles east of Altha, Calhoun County. (Brown, Nichols; Apr. 7).

A DARKLING BEETLE (Tribolium madens) - UTAH - Numerous in nesting material of leafcutting bees at Flowell, Millard County. Det. by T. J. Spilman. Small number of Trogoderma simplex also found in material from these nests. (Knowlton, Barnes).

A SAP BEETLE (Glischrochilus quadrisignatus) - WISCONSIN - Adults observed in corn fields. (Wis. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - WISCONSIN - Adults observed as far north as Jackson County on April 17. (Wis. Ins. Sur.).

A HAIRSTREAK BUTTERFLY (Incisalia henrici) - DELAWARE - Adults collected April 16, 1964, at Trap Pond State Park, Sussex County, by R. W. Lake and F. Murphey. This is first report of species in State. Det. by R. W. Lake. (Burbutis).

BLACK BLOW FLY (Phormia regina) - UTAH - Active on farm at Beaver Dam, Box Elder County. (Knowlton).

CORRECTIONS

CEIR 14(16):332 - CAROLINA GRASSHOPPER (Dissosteria carolina) should read Dissosteira carolina.

CEIR 14(16):350 - Next to last paragraph, end of line 5: A PSYLLID (Aleuroplatus ..., should read A WHITEFLY (Aleuroplatus ...

CEIR 13 and 14: References in these two volumes concerning TENT CATERPILLARS Malacosoma sp., probably texana, in TEXAS should be changed to read Malacosoma sp., probably tigris. M. texana is a synonym of M. tigris.

CEIR 14(16):349 - Next to last paragraph, line 3: P. fraxinipetalae should read read P. fraxinidipetalae.

(Weather continued from page 364).

storm. High temperatures prevailed over the central Great Plains: 94° at Grand Island, Nebraska; 92° at Huron, South Dakota; and 88° at Minneapolis, Minnesota. Severe thunderstorms broke out along the front that separated the cold air from the warm, humid air. By the end of the period, the front had become stationary and stretched from Colorado to Virginia. Severe thunderstorms and several tornadoes occurred in Texas, Oklahoma, Kansas, Nebraska, Iowa, and Missouri.

Temperatures during the week averaged slightly below normal over the Far Northwest, the Great Basin, the northern and central Rocky Mountains, and the northern edge of the Great Plains. Temperatures averaged above normal over most of the rest of the Nation. Temperature departures ranged from -7° at Spokane, Washington, to +8° at Pittsburgh, Pennsylvania. Over most of the Ohio River Valley, the temperatures averaged 6° or more above normal. Less than 0.50 inch of rain fell at most stations over the western half of the Nation except southern Texas. Most of the eastern half of the Nation received more than 0.50 inch. An area extending from east-central Texas to Alabama received more than 2.00 inches. Some stations in this area received several inches of rain. Ville Platte, Louisiana, received 14.55 inches from 5 o'clock Friday evening until 7 o'clock Saturday morning. Several stations in central Illinois and central Indiana and several in southern New England received more than 3.00 inches of rain during the week. (Summary supplied by U.S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 4/11-17			BL		1		3		3								19				27			Misc.
FLORIDA																								
Gainesville 4/13			BL	1					4		1	1									1			
GEORGIA																								
Tifton 4/2-8			BL							0	2								0	0				
ILLINOIS (County)																								
Champaign 4/10-16	49-64	0-trace																			2			
KANSAS																								
Garden City 4/10, 13				3													1							
Manhattan 4/10-16						2											1							
Wathena 4/6, 9-10				1													1							
MISSISSIPPI																								
Stoneville 4/11-17	42-80	2.90"	MV	6			13										37	3			92			
Stoneville 4/11-17	42-80	2.90"	BL	17			21										64	3			91			
SOUTH CAROLINA																								
Charleston 4/13-19	45-81	0.04"	BL	7			1		1	0	2	0					3	3	0	0	27		0	
TENNESSEE (Counties)																								
Madison 4/7-13				3																				
Maury 4/7-13				5													6	4			12			
Robertson 4/7-13				3													3	3			16			
Cumberland 4/7-13				5													4				8			
Greene 4/7-13				3														2			3			
Knox 4/7-13				4													1	2			6			
Johnson 4/7-13																	1				2			
TEXAS																								
Brownsville 4/9-15			6 BL	78			22		3568	3	1118	193		9001			114	33	63	75	18		662	
Waco 4/11-17			BL	19			2		51	0	5	0					101	23			219	4	1	
WISCONSIN																								
Middleton 4/10-16	25-84		BL																		8			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 361)

STORED-PRODUCT INSECTS

Highlights:

All known infestations of KHAPRA BEETLE were treated and no active infestations were known to exist by the end of 1963.

Inspections for the KHAPRA BEETLE (Trogoderma granarium) during 1963 were conducted on approximately 30,250 properties in ARIZONA, CALIFORNIA, NEW MEXICO and TEXAS. No infestations were found. The last premise in Arizona was released from Federal and State quarantines on December 3, 1963. No khapra beetle specimens have been found in New Mexico since May 1959, nor in Texas since April 1960. The last infestation discovered in California was in January 1962 and in Arizona in July 1962. Detection surveys for khapra beetle were conducted on nearly 32,000 properties in 37 States during 1963. No infestations were found, although a number of suspect specimens were submitted for determination. Other species of Trogoderma were found in California warehouses in light populations, and inspections also revealed Anthrenus spp., Attagenus spp. and Perimegatoma sp. to be present in California. In NEVADA, surveys for khapra beetle were negative; the species most commonly encountered was Trogoderma parabile. Since khapra beetle continues to be intercepted regularly at United States ports of entry, intensive detection surveys will be continued in all States.

CIGARETTE BEETLE (Lasioderma serricorne) infested various cereals and spices in all sections of MARYLAND; infestations were general and numerous over GEORGIA in a number of stored products; often reported on a variety of products including tobacco and processed citrus pulp in FLORIDA; and damaged stored products in one or more areas of TEXAS. DRUGSTORE BEETLE (Stegobium paniceum) was a pest of stored products in NEW JERSEY and was commonly reported in VIRGINIA. Drugstore beetle was in evidence in many instances during the year in CALIFORNIA. Infestations in that State were more continuous in 1963. They occurred in commercial warehouses, dry dog food, pantry shelves, packaged rat poison and packed cereal grains. These infestations became a nuisance in households and offices. Drugstore beetle was taken in routine warehouse inspections in California.

LESSER GRAIN BORER (Rhyzopertha dominica) heavily infested grain in storage in Wake County, NORTH CAROLINA, the third week of October, and was occasionally reported in KANSAS in 1963. BROADBEAN WEEVIL (Bruchus rufimanus) infested stored beans locally in a warehouse in San Mateo County, CALIFORNIA, and COWPEA WEEVIL (Callosobruchus maculatus) infested blackeyed peas locally in storage in Fresno County, same State. Cowpea weevil was also a pest of stored products in TEXAS as was COFFEE BEAN WEEVIL (Araecerus fasciculatus).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was one of the major pests of commercial stored grain during 1963 in WASHINGTON, and was taken in routine inspections of CALIFORNIA warehouses. Infestations in WYOMING were found in 51 percent of the farm granaries inspected, but most of the populations were small and not considered as an immediate danger. Saw-toothed grain beetle was frequently taken in inspections in KANSAS, with most being found in grain coming from farms. Infestations of grain were reported in southeast NORTH DAKOTA. Saw-toothed grain beetle infested a wide variety of stored products in buildings and on farms in MARYLAND and it was commonly reported in NEW HAMPSHIRE, NEW JERSEY, PENNSYLVANIA, VIRGINIA and NORTH CAROLINA. The beetle was a pest of stored products in one or more areas of TEXAS and caused minor injury in MICHIGAN. Another cucujid beetle, FLAT GRAIN BEETLE (Cryptolestes pusillus) was the most frequently found species

in stored products in KANSAS, particularly at seeding time. Flat grain beetle was also observed in grain and seed storage in NORTH DAKOTA. RICE WEEVIL (Sitophilus oryzae) was reported to be a problem in wheat and rye bins in McDowell County, NORTH CAROLINA, during October. It was also reported to be a pest of stored products in KANSAS, TEXAS and VIRGINIA as was GRANARY WEEVIL (S. granarius) in the latter two States. Granary weevil was also heavy in stored barley in Pershing County, NEVADA. Both rice weevil and granary weevil were taken in routine warehouse inspections in CALIFORNIA.

CADELLE (Tenebroides mauritanicus) infestations were found in 26 percent of the farm granaries inspected in WYOMING in 1963. Light damage was noted in most places and only limited controls were used. Cadelle was also a pest of stored products in TEXAS.

A SPIDER BEETLE (Mezium americanum) was found in a seed house in Fargo, Cass County, NORTH DAKOTA. This was the first collection of the species since 1939.

CONFUSED FLOUR BEETLE (Tribolium confusum) was one of the most common pests of stored products in PENNSYLVANIA and was reported as pestiferous in NEW JERSEY and TEXAS. It caused only minor injury in MICHIGAN. In WYOMING, infestations of confused flour beetle were found in 34 percent of the farm granaries inspected in the State, but all infestations were light. Infestations of RED FLOUR BEETLE (T. castaneum) in Wyoming were found in 44 percent of the farm granaries and very little was done to reduce infestations. Red flour beetle was heavy in stored barley in Pershing County, NEVADA, and the pest continued to be of major importance in commercial grain storage in WASHINGTON. Tribolium spp. were observed in grain and seed stores in NORTH DAKOTA during the year.

Infestations of YELLOW MEALWORM (Tenebrio molitor) were reported several times in GEORGIA, but most were light to moderate with only a few heavy infestations noted. Yellow mealworm caused minor injury in MICHIGAN during 1963.

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) was again the most important pest of farm-stored grain and corn in MARYLAND, and the pest damaged corn in cribs in Nemaha and Thayer Counties, NEBRASKA, in 1963. Damage was also recorded in TEXAS.

POTATO TUBERWORM (Gnorimoschema operculella) caused trouble in stored potatoes on the Eastern Shore of VIRGINIA in late August and occurred on stored potatoes in Harris County, TEXAS, during the year. A limited number of potato storages in Monroe County, MICHIGAN, were found to harbor light infestations of this pest following a summer when many fields in the area were attacked. Blacklight traps served as an excellent tool for sampling adults. Adult catches at traps were reduced greatly by fogging operations.

WHITE-SHOULDERED HOUSE MOTH (Endrosis sarcitrella) was a local pest of seed oats in Santa Barbara County, CALIFORNIA. Also in that State, normal occurrences of FILBERTWORM (Melissopus latiferreanus) were found in stored walnuts and other nuts.

INDIAN-MEAL MOTH (Plodia interpunctella) was one of the most commonly reported pests of stored food in NORTH CAROLINA and most commonly detected stored-product pest in VIRGINIA. It was heavy in stored wild bird seed in a large store in Prince Georges County, MARYLAND, and was commonly reported in PENNSYLVANIA, NEW JERSEY, NORTH DAKOTA and TEXAS. Indian-meal moth was very troublesome in commercial businesses handling feed and stored-grain products throughout NEW MEXICO. It damaged milo in a bin in Seward County, NEBRASKA, and caused minor injury during 1963 in MICHIGAN. MEDITERRANEAN FLOUR MOTH (Anagasta kühniella) was also commonly reported in VIRGINIA, and MEAL MOTH (Pyralis farinalis) caused minor injury in MICHIGAN. In CALIFORNIA, DRIED-FRUIT MOTH (Vitula edmandsae serratilineella) was a problem locally in dried fruit storage in Solano County. This pest was also occasionally reported from the field. It has not been of consequence in past years.

An OTITID FLY (Chrysomyza demandata) was a pest in one or more areas of TEXAS during 1963.

MUSHROOM MITE (Tyrophagus putrescentiae) infestations were found several times in stored grains and livestock feed in CALIFORNIA, and an ACARID MITE (Aleuroglyphus ovatus) was a pest of stored products in TEXAS.

BENEFICIAL INSECTS

LADY BEETLES were common on alfalfa and clover throughout VIRGINIA. An intensive survey of the distribution and abundance of the common species on clover and alfalfa was conducted in 1963. The most commonly encountered species were CONVERGENT LADY BEETLE (Hippodamia convergens), Coleomegilla maculata fuscilabris, Coccinella novemnotata and Hippodamia parenthesis. Convergent lady beetle adults and larvae were very heavy on late tobacco in MARYLAND, apparently feeding on green peach aphid (Myzus persicae) in Anne Arundel and Calvert Counties. Various species of lady beetles appeared in normal numbers in RHODE ISLAND. Heavy populations of convergent lady beetle built up in southwest OHIO alfalfa fields in early November, and Coleomegilla maculata lengi was found to be an active predator on cereal leaf beetle (Oulema melanopa) in MICHIGAN. Adults and larvae of C. maculata fuscilabris, Coccinella novemnotata, Hippodamia parenthesis, convergent lady beetle (H. convergens) and THIRTEEN-SPOTTED LADY BEETLE (H. tredecimpunctata tibialis) increased rapidly in ILLINOIS in pea aphid (Acyrthosiphon pisum) infested fields during May and undoubtedly helped in keeping the infestation of aphids from becoming too serious. In WISCONSIN, convergent lady beetle, Anatis quindecimpunctata and H. parenthesis were the dominant species present in grain and alfalfa fields. These lady beetles, with other predators, are credited with keeping aphid populations in check. The buildup of predators on grain and alfalfa was rapid until about the time corn leaf aphid (Rhopalosiphum maidis) commenced to increase on corn. There was a midseason drop of lady beetles, then an increase in late summer.

Lady beetles were abundant in forage and cereal crop fields in most areas of NORTH DAKOTA and appeared to affect aphid populations in many fields. Convergent lady beetle and TWO-SPOTTED LADY BEETLE (Adalia bipunctata) were the dominant species in North Dakota. In NEBRASKA, normal populations of Hippodamia spp. were present on most plants throughout the season. Some buildup on corn followed infestations of corn leaf aphid. Lady beetles were about normal in number in KANSAS, with convergent lady beetle the most numerous followed by Coleomegilla maculata fuscilabris. Several species of lady beetles ranged light to heavy in OKLAHOMA, with adults and larvae present in a variety of crops throughout the State during the year. Larvae and adults of lady beetles were the most abundant predators found on cotton during 1963 in ARKANSAS, and many species of lady beetles were noted attacking economic pests in various parts of TEXAS during the year. Lady beetles were very abundant in alfalfa, cotton and barley fields in Dona Ana County, NEW MEXICO, which may account for the lighter populations of aphids and thrips. Various species of lady beetles were active in COLORADO during the season. Large populations were found in WYOMING in alfalfa, corn, potato and sugar beet fields, with the largest numbers being found in August and early September in alfalfa fields. However, lady beetle populations were about the same as in 1962 in Wyoming. In WASHINGTON, lady beetles were unusually abundant on peaches in the Wenatchee area.

The PUNCTUREVINE WEEVILS (Microlarinus lareynii and M. lypriformis) have done an exceptional job of establishing themselves in CALIFORNIA and controlling puncturevine (Tribulus terrestris). The seed infesting species, M. lareynii, was 100 percent effective in areas where introduced. Continued spread and control are anticipated. In NEVADA, both species heavily infested puncturevine in the original release areas of Clark County. Both species were released in additional

areas of Clark County. In Churchill, Lincoln, Mineral and Nye Counties, Nevada, they passed through at least one generation before fall. M. lareynii appeared to have overwintered well at release site near New Mexico State University, University Park, Dona Ana County, NEW MEXICO. Additional releases made this past summer at New Mexico State University Experiment Substation near Artesia, Eddy County, and at Kirkland Air Force Base, Bernalillo County.

A GORSE WEEVIL (Apion ulicis) was very successful in spreading and working in gorse (Ulex europaeus) stands during the year in CALIFORNIA. A CERAMBYCID BEETLE (Crossidius pulchellus) has apparently aided in killing heavy stands of snakeweed (Guterrezia sarothrae) on several sections of rangeland in Hidalgo County, NEW MEXICO. Lighter populations of this beetle were found in Grant, Luna and Dona Ana Counties, New Mexico.

The KLAMATHWEED BEETLES (Chrysolina quadrigemina, C. geminata and Agrilus hyperici) continue to work on klamathweed (Hypericum perforatum) in areas of CALIFORNIA where this weed has regenerated or in forest fringe areas. Areas that were lost for range feeding have now been satisfactorily reclaimed and the weed is no longer a problem. Chrysolina spp. continue to maintain their populations on klamathweed in satisfactory numbers throughout the western part of OREGON.

HYMENOPTEROUS PARASITES were noted attacking economic pests in various parts of TEXAS during 1963. In COLORADO, a release of Aphidius smithi, a parasite of pea aphid (Acyrthosiphon pisum), was made in Mesa County to determine its effectiveness. Pea aphid populations were reduced early in the season in Colorado by an unidentified hymenopterous parasite. Aphidius spp. held pea aphid populations down in the Walla Walla area of WASHINGTON during the late spring. Praon sp. increased on pea aphid populations by late June in Washington. Meteorus sp., a parasite of pine tussock moth (Dasychira plagiata), appeared in Douglas County, WISCONSIN, on May 16. The cocoons became noticeable in the area on June 13 and it is credited with keeping this tussock moth in check. In SOUTH DAKOTA, three parasites of European corn borer (Ostrinia nubilalis) were observed -- Microcentrus gifuensis, Sympiesis viridula and Horogenes punctorius. A heavy infestation of hornworms (Protoparce spp.) on staked tomatoes in Queen Annes County, MARYLAND, was heavily parasitized by Apanteles congregatus.

Moderate population levels of Bathyplectes curculionis, a parasite of alfalfa weevil (Hypera postica), was noted in COLORADO, but they were not as numerous as during the 1962 season.

HONEY BEE (Apis mellifera) is an important pollinator of red clover seed crops in central WASHINGTON and of white clover in the southeastern part of the State. Honey production was good in specific localities, notably in the Columbia Basin. Tree fruit pollination and fruit set was generally good, with some pollination service problem caused by communication and transportation difficulties. A total of 39,985 colonies were inspected in OREGON; 748 colonies were infected with American foulbrood and 175 colonies with European foulbrood. Of the 2,996 apiaries inspected, 348 were infected. Honey production was down 2 percent from 1962 in KANSAS. The State's 44 thousand colonies yielded 47 pounds of honey per colony for a total of 2.068 million pounds. A total of 3,856 colonies were inspected and 62 colonies were found to be infected with American foulbrood, while 4 colonies were infected with European foulbrood. A good honey flow in late summer provided for a State production of 8 percent above 1962 in MICHIGAN, the largest since 1959. Low moisture reserves in the soil during autumn were generally unfavorable for 1964 honey production.

ALKALI BEE (Nomia melanderi) populations in NEVADA, especially those produced in artificial beds, were at high levels in Humboldt, southern Nye and Pershing Counties. Alkali bee began emerging early in WASHINGTON, June 6-16 in the Yakima Valley, and was renesting by June 19. Many alfalfa seed growers timed their first cutting too late for effective pollination. The weather was too cool for good foraging activity.

A LEAFCUTTING BEE (Megachile rotundata) was at high population levels in alfalfa-seed producing areas of Humboldt, Lander and Pershing Counties, NEVADA. The species began emerging June 1 in the lower Yakima Valley of WASHINGTON, about a week later near Moses Lake, Grant County, Washington. The second generation began emerging by July 22. Osmia spp. were pollinators of white clover in southeastern Washington.

BUMBLE BEES (Bombus spp.) are important pollinators of red clover seed in central WASHINGTON and of white clover in the southeastern area. Although overwintering queens of B. mixtus were active as early as mid-February, most new nests were started April 10-May 1. Pollination activity was generally good on bogs of the Long Beach area, Pacific County, and Grayland area, Grays Harbor County, during June. Bumble bees were fairly common in RHODE ISLAND in 1963.

DAMSEL BUGS (Nabis spp.) were common in alfalfa and clover fields in VIRGINIA and MARYLAND; notably during May and June in the latter State. They were also active in clover and alfalfa throughout ILLINOIS. Nabis ferus was the most abundant beneficial insect collected in net sweepings of alfalfa in northwest OHIO in mid-November and N. roseipennis was the most abundant species in NORTH DAKOTA. Damsel bugs were active most of the season in COLORADO, commonly present in OKLAHOMA and attacked economic pests in various parts of TEXAS during 1963.

AN ANTHOCORID BUG (Orius sp.) was abundant in soybean fields during September on the lower Eastern Shore of MARYLAND. This predator may play a role in reducing corn earworm (Heliothis zea) eggs. An INSIDIOUS FLOWER BUG (Orius insidiosus) was the most numerous predator during the establishment of the first generation of European corn borer (Ostrinia nubilalis) in KANSAS as it was in 1962. It was also present in normal numbers on other plants in Kansas. This bug was common in OKLAHOMA and was found attacking economic pests in various parts of TEXAS. It was relatively abundant in cotton fields in ARKANSAS during 1963. Orius sp. was abundant throughout WYOMING, particularly in corn fields. However, populations were generally lower than in 1962.

A BIG-EYED BUG (Geocoris sp.) was abundant throughout WYOMING in alfalfa. The highest populations were found in Lincoln, Uinta, Fremont, Goshen and Platte Counties.

Various species of FLOWER FLIES (Syrphidae) were very common predators on crops infested with aphids in MICHIGAN, and larvae were common in alfalfa and clover throughout VIRGINIA. Larvae were also vary active in COLORADO and they attacked various economic pests in TEXAS during the year. The insects were very abundant in alfalfa, cotton and barley fields in Dona Ana County, NEW MEXICO, and probably accounted for some reduction of economic pests.

Eggs of TACHINA FLIES were commonly found on tent caterpillar larvae in San Juan County, WASHINGTON, in early June. New tent caterpillar adults were scarce in July because of parasite and disease complex. Doryphorophaga doryphorae parasitized Colorado potato beetle (Leptinotarsa decemlineata) in the Walla Walla area during June.

Mature larvae of an undetermined BEE FLY averaged 50 per square foot in egg pods of clear-winged grasshopper (Camnula pellucida) in the Burns area of Harney County, OREGON.

CHINESE MANTIS (Tenodera aridifolia sinensis) was found for the first time in SOUTH CAROLINA in 1963.

GOLDEN-EYE LACEWING (Chrysopa oculata) continued as one of the most common predators attacking aphids in MICHIGAN, and adults and larvae were common in pea aphid (Acyrthosiphon pisum) infested fields in the southern half of ILLINOIS. This species was one of the most abundant lacewings in forage and cereal crop areas of NORTH DAKOTA, and was especially abundant during the second generation of European

corn borer (Ostrinia nubilalis) in KANSAS. Golden-eye lacewing was found attacking economic pests in various parts of TEXAS in 1963. Green lacewings were very abundant in alfalfa, cotton and barley fields in NEW MEXICO and were common in OKLAHOMA, COLORADO and RHODE ISLAND. They were also more numerous than previously noted in the Wenatchee area of Chelan County, WASHINGTON; adults appeared as swarms in the fall. LACEWINGS were about normal for the year in KANSAS and NEBRASKA. Some buildup on corn followed infestations of corn leaf aphid (Rhopalosiphum maidis) in Nebraska.

A SCOTCH-BROOM TIP MOTH (Leucoptera spartifoliella) continued to make progress in controlling Scotch broom (Cytisus scoparius) in CALIFORNIA and it was very effective in many areas where introduced. Also in California, a CINNABAR MOTH (Tyria jacobaeae) has not become established as well as other beneficial insects due to the conditions it has been subjected to. Continued work with this pest of ragworts (Senecio spp.) looks promising. T. jacobaeae was introduced in Linn and Polk Counties, OREGON, in 1960, but has not yet shown satisfactory results.

The accent on beneficial insects and mites continued in CALIFORNIA in 1963 with thousands of beneficial insects released. Many species of parasites and predators were listed and released by the University of California Biological Control. Colonization of beneficial insects resulted from repeated releases during 1963 and past years. Several new insects and mites were introduced, tested and released. Over 5 million parasites were released during 1963. Native parasites and predators were abundant again this year. In many locations the beneficial insects reoccurred later in the season.

BRACONIDS

Phanerotoma flavitestacea
Trioxys pallidus

ENCYRTIDS

Aphycus helvolus
Copidosoma koehleri

EULOPHIDS

Aphelinus varipes
Aphytis sp.
A. coheni
A. lingnanensis
A. near lingnanensis
A. melinus
Aspidiotiphagus lounsburyi
Coccophagoides sp.
Dasyscapus parvipennis
Prospaltella perniciosi
Tetrastichus incertus

A PTEROMALID

Spalangia drosophilae

A TORYMID

Eupteromalus nidulans

A GREEN LACEWING

Chrysopa carnea

LADY BEETLES

Cryptolaemus montrouzieri
Rhizobius satellus

A KLAMATHWEED BEETLE

Chrysolina gemellata

PUNCTUREVINE WEEVILS

Microlarinus lareynii
M. lypriformis

A SCIOMYZID FLY

Sepedon praemiosa

PHYTOSEIID MITES

Phytoseiulus persimilis
Typhlodromus aerialis
T. hibisci
T. limonicus
T. rickeri

MISCELLANEOUS INSECTS

Highlights:

The JAPANESE BEETLE eradication program in the Sacramento area of California continued encouraging during 1963; no live beetles were taken. Populations in the Northeast were very low during the year. Important new infestations were found in Michigan and Illinois. EUROPEAN CHAFER was found for the first time during 1963 in Pennsylvania when an infestation was discovered at Erie in June. WHITE-FRINGED BEETLES and IMPORTED FIRE ANT were found in a number of new counties; 31 for the former and 22 for the latter.

Results of the cooperative Federal-State program to eradicate the JAPANESE BEETLE (Popillia japonica) outbreak in the Sacramento area of CALIFORNIA continued encouraging during 1963 as no live beetles were taken during the year. About 8,000 traps were in operation in that State. Visual inspections were intensified also. To locate possible spread from the generally infested area in the United States, over 60,000 traps were in operation in 36 States during the beetle flight period. Data from these survey operations provide the basis for eradication treatments in peripheral areas. No new long-distance spread was discovered in 1963; however, new infestations were discoverd on the periphery of the area of general infestations. Among the more important new infestations were those at Battle Creek and Detroit, MICHIGAN, and Mattoon and Charleston, ILLINOIS. An area of some 67,744 acres in area of Battle Creek was found infested. Much of this and another smaller infestation at Ypsilanti were treated with ground equipment. A live beetle was taken on July 10 in a trap at Minneapolis-St. Paul International Airport. This was the only specimen found in MINNESOTA during 1963. The first adults of the season for INDIANA were collected June 22 in Newton County. The first adult collected in RHODE ISLAND was in Kingston, Washington County, May 31. Homeowners in Rhode Island reported heavy adult emergence in Pawtucket, Providence County, on June 12. Japanese beetle was generally present in sparse numbers July 1 through early September, but there was no evidence of a general emergence peak aside from some instances of slight buildup in isolated spots in early August. There were practically no complaints from property owners. The season was probably the lowest population level since this insect became established in Rhode Island. There were no reports of serious turf damage.

The use of blacklight and lure traps provided more effective survey of EUROPEAN CHAFER (Amphimallon majalis). The first infestation of this pest in PENNSYLVANIA was discovered at Erie in June. In addition, more than 179,000 acres were found infested for the first time in CONNECTICUT, NEW JERSEY and NEW YORK. Traps were operated in strategic locations in 15 additional States in an effort to detect any new infestations. All known infested areas were treated in New Jersey and Pennsylvania. Treatments in New York have been limited to isolated infestations and to transportation sites where a hazard of spread exists. The areas under regulation in Connecticut and New York were expanded to bring all known infestations under regulation. There has been no reoccurrence of the infestation at Capon Bridge, WEST VIRGINIA.

Infestations of Ceratophyus sp., a horned scarab, continued in the Vandenberg Air Force Base in CALIFORNIA, with a few instances of gopherlike mounds produced in lawn areas of yards and golf course. This is the only location this scarab is known to occur.

During the past year significant increases in WHITE-FRINGED BEETLES (Graphognathus spp.) occurred throughout the generally infested area. Along with this increase in population density, 31 new counties were recorded in the Southern States. These included 3 in ALABAMA, 4 in FLORIDA, 8 in GEORGIA, 2 in LOUISIANA, 3 in

MISSISSIPPI, 6 in NORTH CAROLINA, 2 in SOUTH CAROLINA, 2 in TENNESSEE and 1 in VIRGINIA. The outlying infestation in KENTUCKY has been treated and work is continuing in ARKANSAS in the 6 northeastern counties. In Virginia, work has been delayed until the new infestations in the Norfolk area are delimited and mapped. Throughout the generally infested area, more than 60,000 acres were soil-treated to eliminate heavy infestations. Regulatory treatments involved more than 10 thousand acres of nursery. In heavily infested areas, more than 1,000 acres were treated with foliage sprays to reduce populations. Method improvement efforts are being intensified to find more effective ways of dealing with these pests. During 1963, the white-fringed beetle quarantine regulations were revised to provide for suppressive areas within or adjacent to generally infested areas. This action will provide protection to areas being treated to eradicate the weevils by reducing the movement of host materials and other commodities into the area.

Light numbers of a WEEVIL (Compsus auricephalus) continue to be found in cotton and soybeans in ARKANSAS. Large numbers were found in a small area of Pope County; but they have not become economic.

Adult LEAF BEETLES (Disonycha xanthomelas, D. triangularis and Gastrophysa polygoni) were submitted in MICHIGAN due to their superficially resembling cereal leaf beetle (Oulema melanopa).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) treatment in the Southern United States involved 2,687,054 acres during 1963. Seven States reported finding this pest in 22 additional counties. In GEORGIA, 9 new county records were established. TEXAS and MISSISSIPPI reported 4 new county records each. FLORIDA discovered 2 additional counties infested and ARKANSAS, NORTH CAROLINA and SOUTH CAROLINA recorded one new county each. Swarms were observed on November 19 in Clayton County, Georgia, which is the latest date on record for swarms in that area. SOUTHERN FIRE ANT (Solenopsis xyloni) was common in lawns in the east central area of TEXAS.

SPOTTED CUTWORM (Amathes c-nigrum) outnumbered all other cutworm species in NEW HAMPSHIRE blacklight collections. A NOCTUID MOTH (Protorthodes rufula) became a problem in CALIFORNIA homes by entering and chewing fabrics and rugs in local areas.

PUMPKIN CATERPILLAR (Diaphania indica) was occasionally caught in Steiner traps in FLORIDA in the Avon Park and Sebring areas of Highlands County.

SEED-CORN MAGGOT (Hylemya platura) adults infected with a fungus were numerous on various plants and other objects in MARYLAND in Montgomery and Prince Georges Counties.

Broods III and XXIII of PERIODICAL CICADAS (Magicicada spp.) emerged in ILLINOIS. Brood XXIII, a 13-year brood, appeared over much of southern Illinois. Emergence began at Carbondale on May 10 and the population reached a peak between May 20 and 30 when very heavy emergence occurred. The weather was intermittently cool. Egg laying began May 22 and was at a peak during the first week in June and continued into the third week. Several new county records were established for these two broods viz: Brown, Schuyler, Piatt, De Witt, Knox and Henderson.

An unprecedented outbreak of CYDNID BUGS (Sehirus cinctus and Corimelaena sp.) occurred throughout the southern area of LOUISIANA. S. cinctus appears to have seriously damaged sugarcane in localized areas of fields in Assumption Parish bordering headlands, pastures, ditchbanks and similar areas. Corimelaena sp. damaged rice along margins of pastures from which they had moved in fantastic numbers.

Heavy populations of a COREID BUG (Arhyssus scutatus) invaded homes in many locations statewide in CALIFORNIA. Populations started early and were active until late in the year.

WESTERN DRYWOOD TERMITE (Incisitermes minor) was collected for the first time in NEVADA. A heavy infestation was found in partly dead ash trees in the Spring Mountains of Clark County.

A SPRINGTAIL (Entomobrya unostrigata) was very plentiful in CALIFORNIA due to a wet spring. These insects created a nuisance in swimming pools, on walks and in yards and homes.

Medium populations of a TROMBIDIID MITE (Dinothrombidium magnificum) occurred in soil in Lucerne, San Bernardino County, CALIFORNIA.

SOLPUGIDS and ORB WEAVER SPIDERS caused above normal complaints in the northwestern counties of NEVADA. Unusual numbers of PSEUDOSCORPIONS were reported in a home in Northfield, Washington County, VERMONT.

A SNAIL (Vallonia pulchella) was noted in yards, driveways and walks in CALIFORNIA. Great numbers of this minute species occurred in many locations and became a considerable nuisance to homeowners.

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Included in the "Summary of Insect Conditions in the United States - 1963" are the following special reports:

1. Summary of Fruit Insect Conditions, 1963, New York-New England Fruit Spray Specialists' Conference, compiled by L. W. Boulanger, Maine Agricultural Experiment Station, from the conference held at Storrs, Connecticut, October 29-30, 1963.

2. The highlight section of Forest Insect Conditions in the United States - 1963, compiled by the Division of Forest Insect Research, Forest Service, U. S. Department of Agriculture.

3. Vector Control Briefs, Issue No. 11, January 1964. Edited by Mr. Leslie D. Beadle and Dr. Harry D. Pratt. Published by U. S. Department of Health, Education and Welfare, Public Health Service, Communicable Disease Center, Atlanta, Georgia 30333.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 18 May 1, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
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Volume 14 May 1, 1964 Number 18

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SWEETCLOVER WEEVIL most abundant curculio found in forage fields throughout northwest Ohio. (p. 397). PEA APHID heavy on alfalfa in Lemoore area of Kings County, California; continues to increase throughout Arizona; considerable build-up noted in north central and northwest Oklahoma with some controls initiated; and building up on alfalfa in southwest Missouri. (pp. 397-398). Slight increases of SPOTTED ALFALFA APHID found on alfalfa in Yuma, Graham, Maricopa and Pinal Counties, Arizona; and hatching of MEADOW SPITTLEBUG observed in sections of Ohio and Maryland. (p. 398).

Activity of GREENBUG generally declining in Oklahoma, with some heavy, localized infestations being treated. Damage to wheat noted in De Baca, Curry and Roosevelt Counties, New Mexico. Populations of BROWN WHEAT MITE also continue damaging to wheat in sections of those States. (p. 399). Light to medium infestations of WHEAT CURL MITE found in nearly all fields examined in central and northwest Kansas. Wheat streak mosaic abundant enough to cause considerable damage in early planted fields. (p. 400).

CITRUS RED MITE expected to be more abundant in Florida citrus than in past 3 years, and TEXAS CITRUS MITE more abundant than in April of prior years. Several SCALE INSECTS infesting above normal percent of Florida citrus groves. (p. 402). CITRUS THRIPS increasing on citrus in Yuma and Maricopa Counties, Arizona; treatments underway. (p. 403).

Overwintering adults of BEET LEAFHOPPER 0.5-4 per square foot of host area in Washakie County, Wyoming. (p. 404).

Serious potential of SOUTHERN PINE BEETLE exists in Chattahoochee National Forest in Georgia, and potential threat present in North Carolina. BLACK TURPENTINE BEETLE infestations may be serious in Arkansas, along with ENGRAVER BEETLES (*Ips* spp.). (pp. 405-406). Egg hatch of a SAWFLY (*Neodiprion taedae linearis*) indicates possibly heaviest infestation in Arkansas since bad years of 1946 and 1947. (p. 407).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

CLOVER ROOT BORER larvae in Idaho; SIX-SPOTTED LEAFHOPPER adults in Wisconsin and Minnesota; ARMYWORM, BLACK CUTWORM and VARIEGATED CUTWORM adults in blacklight traps in Wisconsin; first and second instars of DIFFERENTIAL GRASSHOPPER and TWO-STRIPED GRASSHOPPER in Oklahoma; PLUM CURCULIO egg laying in Alabama; EUROPEAN PINE SAWFLY egg hatch in Ohio; FALL WEBWORM larvae in Georgia; injury by a LEAF ROLLER MOTH (*Archips rosana*) in Oregon; COLORADO POTATO BEETLE adults on Eastern Shore of Virginia; ASPARAGUS BEETLE adults in Alabama; BOLL WEEVIL in Alabama; LARCH CASEBEARER larvae in Wisconsin; ELM LEAF BEETLE adults active in Idaho and egg laying underway in Oklahoma; and FACE FLY adults on cattle in Massachusetts, Vermont, Virginia and Ohio.

DETECTION

A STRAWBERRY LEAF ROLLER (*Olethreutes cespitana*) reported in Delaware for the first time. (p. 404). WHITE-FRINGED BEETLES found in Marlboro County, South Carolina, and in Carroll and Yazoo Counties, Mississippi, for the first time. (p. 412).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 410).

Hawaiian Insect Notes. (p. 414).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 415).

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NOTE: Reproduced on pages 417-426 of this issue is PPC DIVISION MEMORANDUM NO. 801.31 on the procedures for handling pesticides safely. Although this material was prepared for Plant Pest Control Division employees, it is believed it will be of interest to everyone associated with pesticides.

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Reports in this issue are for week ending April 24, unless otherwise indicated

WEATHER OF THE WEEK ENDING APRIL 27

Violent storms occurred on several days over mid-America during the week ending April 27. Heavy rains produced weekly totals above 8 inches from Arkansas to Alabama, continuing the heavy rainfall pattern that has persisted for several weeks in that general area. Substantial rains fell over most of the Corn Belt. Little rain of importance fell over the Far Southwest. Parts of the northern Rocky Mountains received more than 0.50 inch. Much of western Wyoming received more than 1.00 inch of precipitation during the week. Totals exceeded 2.00 inches over northern Illinois, central Indiana, and most of Ohio except the extreme south. Amounts ranged widely over the Southeast from 0.05 inch at Apalachicola, Florida, to 5.00 inches or more from Texas to Alabama. The total at Byrd, Texas, was more than 10.00 inches.

Temperatures averaged below normal west of 105° west longitude and over several northeastern States and above normal over the rest of the Nation. Most of the Great Basin averaged at least 10° colder than normal. Oklahoma and nearby portions of neighboring States, along with parts of central Kentucky and Tennessee, averaged 6° or more warmer than normal. Temperature departures ranged from -14° at Pocatello, Idaho, to +8° at Wichita Falls, Texas, Oklahoma City, Oklahoma, and Evansville, Indiana.

Early Monday morning, April 20, a front stretched from southern Colorado to Virginia. Showers and thunderstorms occurred over parts of 21 States from Utah to New Jersey. The most severe activity was from Kansas to Indiana. A band of rainy weather extended from the central Rocky Mountains to the Atlantic Ocean. Wind gusts at Grand Island, Nebraska, reached 90 m.p.h. Hail fell at scattered locations in eastern Nebraska, eastern Kansas, and northern Missouri. Tornadoes struck Texas, Oklahoma, Kansas, Nebraska, Iowa, and Missouri. Showers and thunderstorms continued Tuesday over a 13-State area from Texas to the Great Lakes. A wide band of strong winds, cold rain, and, along the Canadian border, snow occurred as the storm moved northeastward across Minnesota. Severe thunderstorms occurred over the Ohio River Valley.

(Weather continued on page 416).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Infestations very light to light in Giles, Alleghany, Bath, Rockingham, Shenandoah, Warren, Frederick, Fauquier, Augusta and Botetourt Counties; medium to severe in Culpeper, Madison, Greene and Rockbridge Counties. Adults extremely abundant and active, a high percentage mating when observed, in all fields sampled. Egg masses encountered only in severely infested fields. Early instars only present in lightly infested fields, with third and fourth-stage larvae dominant in heavily infested fields. (Tarpley). Larvae ranged 3-7 per tip in 7-acre field and 5-7 per tip in 2-acre field of alfalfa in Pittsylvania County. (Dominick). Larvae continue severe in Campbell County alfalfa. (Ellis). Larvae averaged 66 per sweep in alfalfa 10-15 inches high near Darlington Heights, Prince Edward County, and causing fairly heavy damage. Sweeps in alfalfa 8-12 inches tall at Steeles Tavern, Augusta County, yielded 185 larvae and 10 adults per 100 sweeps. Scattered damage just becoming evident. (Pienkowski). Larvae present in all alfalfa in Culpeper County; 12-18 per stalk in some fields. (Heltzel). Active in Lunenburg County; many farmers applied controls. (Powers). MARYLAND - Injury from developing larvae ranged from light to moderate in central and western sections to moderate to heavy in eastern and southern areas. (U. Md., Ent. Dept.). DELAWARE - Larval feeding injury variable, but very noticeable in few fields in New Castle and Kent Counties. Injury greatest in one field in southern Kent County where larvae (all instars) averaged 10 per sweep. (Burbutis). NEW JERSEY - Larvae observed in alfalfa from Burlington County south; buildup expected in 2-3 weeks. (Ins.-Dis. Newsltr.). OHIO - Two adults and 6 larvae collected in 12 sweeps of alfalfa near Ironton, Lawrence County. Feeding damage spotty. (Crawford). KANSAS - No larvae or adults found in alfalfa in northwest area. (Peters). COLORADO - No larvae taken in sweepings to April 23 in Mesa County. (Bulla). UTAH - Adults active in Utah, Weber and Cache County alfalfa; some feeding injury noted on young plant growth. (Knowlton). WYOMING - No adult activity noted in alfalfa in Goshen and Platte Counties as of April 19. Adults noted for first time this season in alfalfa fields of Washakie County; averaged 1-2 per square foot; approximately 60 percent of fields had controls applied. (Marks).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae causing conspicuous injury to red and ladino clover in several areas of State. (U. Md., Ent. Dept.). MISSOURI - Counts in southwest ranged 0-4 per square foot; those larvae infested with a fungus ranged from 50 to 100 percent (average 85 percent). Very little damage noted in alfalfa. (Houser, Thomas, Wood).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Adults ranged 1-2 per 10 sweeps on red clover in Talbot County. (U. Md., Ent. Dept.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Results of dissection of 100 fourth-stage larvae collected April 16 showed 15 percent parasitized by Bathyplectes curculionis. Specimens collected in Tucson area of Pinal County. (Lieberman).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OHIO - Most abundant curculio found in forage fields throughout northwest area. Adults 15-20 per 25 sweeps near Findlay, Hancock County. Moderate feeding damage occurring on sweetclover seedlings. (Forsythe, Lyon).

A WEEVIL (Sitona scissifrons) - WISCONSIN - Appearing commonly in alfalfa in Crawford, La Crosse and Trempealeau Counties. (Wis. Ins. Sur.).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - Larvae heavily infesting a second-seed-year red clover field in Canyon County; first report of insect in 1964. (Waters).

PEA APHID (Acyrthosiphon pisum) - CALIFORNIA - Populations of nymphs and adults heavy on alfalfa in Lemoore, Kings County. (Cal. Coop. Rpt.). ARIZONA - Continues to increase on alfalfa throughout State. Ranged light to heavy in Yuma and Graham Counties and medium to heavy in Maricopa and Pinal Counties. (Ariz. Coop.

Sur.). NEW MEXICO - Light, spotted infestations in alfalfa in De Baca, Quay, Roosevelt, Chaves and Eddy Counties. (N.M. Coop. Rpt.). OKLAHOMA - Light, 50-200 per 10 sweeps, in southwest and west central counties. Moderate to heavy in north central and northwest counties, with considerable buildup noted. Some controls initiated. (Okla. Coop. Sur.). ARKANSAS - Light, about 75-100 per 100 sweeps, in alfalfa in Washington County. (Ark. Ins. Sur.). MISSOURI - Building up on alfalfa in southwest. Heaviest infestations found in Jasper, Newton and McDonald Counties; ranged 25-200 per 100 sweeps. Spots of heavy infestations in Jasper County fields. (Houser, Thomas, Wood). KANSAS - Averaged about 50 per sweep on 6-8 inch alfalfa in Ellis County, central area. (Harvey). Ranged from 10 to over 1,100 per 100 sweeps (averaged less than 50 per 100 sweeps) on 2-6 inch alfalfa in north central and northwest areas. (Peters). NEBRASKA - Very light populations, less than 1 per 10 sweeps, present in south and southeast areas. (Bergman). WISCONSIN - Populations mostly unchanged; stem mothers nearly mature in many fields and embryos being formed. (Wis. Ins. Sur.). OHIO - Egg hatch occurred throughout State. Nymphs easily found in Williams County, northwest area. (Lyon). VIRGINIA - Present in extremely small numbers in all alfalfa checked in several northern counties; beneficials present in most fields. (Tarpley). MARYLAND - Averaged 70-90 per sweep on alfalfa in Dorchester and Talbot Counties; light to April 24 on alfalfa in central and western areas. (U. Md., Ent. Dept.). DELAWARE - Continues to increase on alfalfa; averaged between 1,200-2,000 per 100 sweeps in New Castle and Kent Counties. (Burbutis). NEW JERSEY - Populations very low in alfalfa fields examined; large numbers of predators and parasites present. (Ins.-Dis. Newsltr.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Slight increases found on alfalfa in Yuma, Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light in De Baca and Roosevelt County alfalfa; approximately 40 acres of alfalfa treated. (N.M. Coop. Rpt.). OKLAHOMA - Populations continue low in southwest and west central areas; 150-200 per 10 sweeps. (Okla. Coop. Sur.). ARKANSAS - Counts 150-200 per 100 sweeps of 15-inch net in Washington County, northwest area. (Ark. Ins. Sur.). KANSAS - Not found on alfalfa in Ellis County, central area, or in north central and northwest areas. (Harvey, Peters). WISCONSIN - Averaged 5 per stem in observation fields in Brodhead area; fundatrices about half grown. (Wis. Ins. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - OHIO - Most abundant leafhopper throughout nortwest area; 35 adults per 25 sweeps in alfalfa near Bowling Green, Wood County. (Treece, Lyon). UTAH - Numerous in alfalfa field at Lehi, Utah County. (Knowlton).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Several eggs found in Morrow, Ashland and Wayne Counties. First hatch occurred in Delaware County, central area. Nymphs easily observed, with few producing spittle masses on clovers. (Holdsworth, Lyon). MARYLAND - First nymphs of season found April 23 on red clover at Trappe, Talbot County. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Slight increases found in alfalfa in Graham, Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Light, 2-3 per 10 sweeps, in Beckham and Washita Counties. (Okla. Coop. Sur.). NEBRASKA - Adults less than 1 per 10 sweeps in south and southeast areas. (Bergman). DELAWARE - Adults present on alfalfa in New Castle and Kent Counties. (Burbutis). MARYLAND - Adults moderately abundant in red clover and alfalfa on Eastern Shore. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Populations increasing rapidly in Yuma, Graham and Maricopa Counties; average per 100 sweeps 70 in Yuma County, 3 in Graham County and 75 in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Larvae, about third instar, present in southern area alfalfa. (Wis. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Light infestation along with a few Lygus spp. in crimson clover in western Covington County. (Stephenson).

THRIPS - NEW MEXICO - Generally light in alfalfa checked in Dona Ana, Roosevelt and Quay Counties. Slightly heavier populations noted in several Eddy County fields. (N.M. Coop. Rpt.). ARIZONA - Frankliniella occidentalis light to medium in Yuma County alfalfa; medium to heavy in Graham, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light infestations found in almost all wheat checked in De Baca, Curry and Roosevelt Counties. Heavier infestations averaged up to 50 per linear foot in De Baca County, 100+ per linear foot in Curry County and over 200 per linear foot in Roosevelt County. Damage apparent in all of these fields. (N.M. Coop. Rpt.). OKLAHOMA - Activity generally declining with some heavy, localized infestations being treated. Predators and parasites increasing, with heavy populations of lady beetles (adults and larvae) present in some areas. (Okla. Coop. Sur.). KANSAS - Occasional wingless specimen observed in wheat in north central area; only a trace number noted in a few fields. (Peters). MISSOURI - Light on wheat in Barton, Jasper and Newton Counties, southwest; ranged 0-10 and averaged 4.3 per 100 sweeps. (Houser, Thomas, Wood).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Found in almost all wheat fields examined in north central and northwest areas; ranged 10-100 per 100 sweeps, about 25 percent of specimens winged. (Peters). MISSOURI - Light infestations on wheat and oats in southwest; ranged 5-130 per 100 sweeps. (Houser, Thomas, Wood). ARKANSAS - Counts low, 50-100 per 100 sweeps, in small grains in northwest area. (Ark. Ins. Sur.). WISCONSIN - Alates averaged about one per 100 sweeps in rye in western and southwestern areas; embryos fully developed. (Wis. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate numbers noted in small grain fields in eastern Comanche County; lighter counts present in Caddo and Stephens Counties. (Okla. Coop. Sur.).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Active in northern area alfalfa. (Knowlton).

A PLANT BUG (Irbisia sita) - CALIFORNIA - Light adult populations on barley leaves in Lemoore, Kings County. (Cal. Coop. Rpt.).

A COREID BUG (Harmostes reflexulus) - CALIFORNIA - Medium adult populations occurring on native grasses in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Light to medium populations feeding on oats locally in Covington County; averaged about 2 per sweep. (McQueen).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults common in rye in western and southwestern counties; range per 100 sweeps -- 8 in La Crosse and Trempealeau Counties to 3 in Green County. (Wis. Ins. Sur.). MINNESOTA - Averaged 2 per 600 sweeps on winter wheat at St. Paul on April 16. Maximum temperature that day was 88° F., with 20 m.p.h. winds. Strong southerly winds had been blowing previous 24 hours. (Minn. Ins. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Moderate infestations found in all wheat checked between Ragland and Melrose in Quay and Roosevelt Counties. Damage becoming very apparent in fields checked between Clovis and Pleasant Hills in Curry County; populations becoming heavy. (N.M. Coop. Rpt.). OKLAHOMA - Moderate to heavy infestations continue active in Kiowa, Ellis, Washita, Blaine and Kingfisher Counties. Populations should decline since summer eggs are present. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Heavy, spotted infestations noted in some Noble County fields. Light to moderate counts also reported from

Kingfisher County. (Okla. Coop. Sur.). MISSOURI - Caused severe damage in small area of field of orchardgrass in Barry County, southwest; damaged area recovering. (Houser, Thomas, Wood).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Light to medium infestations found in nearly all fields examined in central and northwest districts. Scattered mosaic infected plants found in many fields. Heavier infestations in Norton, Thomas, Sheridan, Graham, Logan and Gove Counties, and mosaic abundant enough to cause considerable damage in early planted fields. (Somsen, Sill, Peters).

CEREAL LEAF BEETLE (Oulema melanopa) - NEW MEXICO - No evidence of this pest found in survey of wheat fields in Curry County. (N.M. Coop. Rpt.). OHIO - No adults collected to April 22 in northwest area. (Moore).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Heavy, local infestations damaging corn in Fayette County. (Anderson).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ALABAMA - Heavy on small roasting ear corn in Lee County. (McGlohon, et al.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Lawn damage on increase all over Elmira, Chemung County. (N.Y. Wkly. Rpt., Apr. 20).

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Survival of overwintering larvae 83 percent in La Crosse and southern Trempealeau Counties. Considerable feeding by downy woodpecker occurred in latter county in particular. (Wis. Ins. Sur.). DELAWARE - Pupation of overwintering borers averaged 20 percent in Kent County. (Burbutis). MARYLAND - Pupation well underway April 23 on Eastern Shore. (U. Md., Ent. Dept.).

CORN EARWORM (Heliothis zea) - FLORIDA - Infesting corn at Homestead, Dade County, on April 20 and lightly to severely damaging localized areas of corn at Plantation, Broward County, on April 14. (Brown, McLean, Clinton). ARKANSAS - Egg deposition increased on crimson clover in Bradley County, south central area. Thirteen moths collected this week in light trap at Hope, southwest area; none taken in trap at Kelso, southeast. (Ark. Ins. Sur.).

FALL ARMYWORM (Laphygma frugipdera) - FLORIDA - Lightly to severely damaging localized areas of corn leaves and ears at Plantation, Broward County. (McLean, Clinton; Apr. 14).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Lightly to severely damaging localized areas of corn at Plantation, Broward County. (McLean, Clinton; Apr. 14).

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Appearance of moths in light traps has coincided closely last two years, occurring on April 15 and 16 while the first catches during 1962 were on April 21. (Wis. Ins. Sur.).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Adults appeared for first time this season on April 16 in light traps at Madison and Middleton and occurred on that same date in 1963. During 1962, it occurred at these locations on April 26. (Wis. Ins. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - WISCONSIN - Caught on April 17 in light trap during both 1963 and 1964, while it appeared on May 15 in 1962. (Wis. Ins. Sur.).

SAWFLIES (Dolerus spp.) - OHIO - Larvae appearing in forage fields throughout State; adults reported abundant few weeks earlier. (Lyon).

SEED-CORN MAGGOT (Hylemya platura) - IDAHO - Adults present in fewer numbers than usual in southwestern area. (Scott).

MORMON CRICKET (Anabrus simplex) - UTAH - Hatched in Millard County area south of Kanosh. Scattered specimens along highway in second instar on April 8. (Burnette, Knowlton).

GRASSHOPPERS - CALIFORNIA - Camnula sp. eggs beginning to hatch in lower elevation meadows in the Santa Ysabel area, San Diego County, on April 13. (Cal. Coop. Rpt.). OKLAHOMA - First and second instars of Melanoplus differentialis and M. bivittatus collected in Caddo, Comanche and Stephens Counties. (Okla. Coop. Sur.).

FRUIT INSECTS

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Defoliating apple trees in Marshall County, south central. (Okla. Coop. Sur.).

PEACH TWIG BORER (Anarsia lineatella) - TEXAS - Damaging peach trees in Midland County. (Green).

CODLING MOTH (Carpocapsa pomonella) - UTAH - Larval survival high under bark of apple trees in Vernal-Maeser area of Uintah County. (Knowlton, Bendixsen). COLORADO - No pupation noted to April 14 in commercial apple orchard in Larimer County. (Kamal).

GREEN FRUITWORM (Lithophane antennata) - OHIO - Females depositing eggs on apple foliage in Cincinnati area April 15. (Rings).

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Egg laying heavy on plums in Lee County. Numerous adults taken during inspection of trees; very little fruit present, following late freeze. An apparent high overwintering of adults resulting in damage to high percentage of fruit that is present. (McQueen).

APPLE APHID (Aphis pomi) - NEW YORK - Observed on apple April 15 in Orange County, hatch heavy April 16 in Ulster County, and feeding on breaking buds in Columbia County. (N.Y. Wkly. Rpt.; Apr. 20). NEW JERSEY - Noted in several orchards. (Ins.-Dis. Newsltr.).

ROSY APPLE APHID (Anuraphis rosea) - CALIFORNIA - Nymphs heavy on plum and apple in Sanger, Fresno County. (Cal. Coop. Rpt.). NEW JERSEY - Noted in several apple orchards. (Ins.-Dis. Newsltr.). CONNECTICUT - Found in most areas of State. (Savos).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Recently emerged nymphs prevalent on opening leaf buds of early apple varieties at Gays Mills, Crawford County. (Wis. Ins. Sur.). OHIO - Eggs hatched throughout northwest; nymphs collected from apple trees near Toledo, Lucas County. (Lyon).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Development slow on peaches in Mesa County. (Bulla).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Heavy emergence from hibernation sites occurred April 2 in western area and was completed by April 13. Oviposition started on April 7. (N.Y. Wkly. Rpt.). OHIO - Heavy egg deposit noted on pear tree at Wooster, Wayne County, northeast, April 17. (Forsythe).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Widespread in Jackson County pear orchards. Eggs noted hatching April 15. (Berry). OHIO - Hatching occurred at Wooster, Wayne County, northeast, April 17. (Forsythe). DELAWARE - Eggs hatching on apple in early bloom stage in several areas of State. (Kelsey, MacCreary). NEW JERSEY - Overwintering eggs hatching in southern counties as of April 21. (Ins.-Dis. Newsltr.). NEW YORK - Egg numbers not large in Columbia County orchards. Carryover appears generally moderate in Clinton County. (N.Y. Wkly. Rpt., Apr. 20).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Overwintering forms active on apples in Mesa County. Adults observed on green vegetation of ground cover and on tree trunks. (Bulla).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light on pecan in Dougherty County, April 15. This is first report of season. (Tedders).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintering larvae light and feeding on opening buds in one of 3 pecan orchards examined in Lee County. (McQueen).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Damaging pecan trees in Erath and Parker Counties. (Newton).

A LEAF ROLLER MOTH (Archips rosana) - OREGON - Overwintering eggs hatching and injury becoming evident in infested filbert orchards in Willamette Valley. (Jones).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - CALIFORNIA - Medium locally on almond trees in Hickman, Stanislaus County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Early stages of unspecified species feeding on buds and leaves in 3 pecan orchards examined in Lee County. (McQueen).

PLANT BUGS - ALABAMA - Early stage nymphs heavy on buds in 3 pecan orchards examined in Lee County. (McQueen). GEORGIA - Moderate on pecans in Tift County. (French).

A TREEHOPPER (Cyrtolobus tuberosa) - FLORIDA - Scattered on pecan trees in nursery at Monticello, Jefferson County. (Phillips, Apr. 14).

A SAWFLY (Megaxyla langstoni) - ALABAMA - Few groups of larvae feeding on pecans in Mobile County area. This species was pest of minor importance on pecans in this area and as far north as Lee County in 1963. (Robinson, Seibels).

Citrus Insect Situation in Florida - Mid-April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 49 percent of groves (norm 57 percent); 28 percent economic (norm 32 percent). Population is below average and at moderate level. Little change expected before mid-May. Highest districts west and north. CITRUS RED MITE (Panonychus citri) infested 60 percent of groves (norm 65 percent); 23 percent economic (norm 39 percent). Population showing strong increase as mites move out on new leaves. This mite expected to be more abundant than in past 3 years. Highest districts north, central and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 42 percent of groves (norm 23 percent); 19 percent economic (norm 8 percent). This mite more abundant than in April of prior years. Gradual increase expected and scattered groves will have heavy infestations. Highest districts east and central. PURPLE SCALE (Lepidosaphes beckii) infested 84 percent of groves (norm 84 percent); 14 percent economic (norm 18 percent). Highest districts south, east and central. No change expected. GLOVER SCALE (L. gloverii) infested 69 percent of groves (norm 28 percent); 24 percent economic (norm 1 percent). Highest districts south, east and central. No changed expected. CHAFF SCALE (Parlatoria pergandii) infested 83 percent of groves (norm 41 percent); 25 percent economic (norm 1 percent). Highest districts east, central and south. Slight decrease expected. YELLOW SCALE (Aonidiella citrina) infested 51 percent of groves (norm 10 percent),13 percent economic (norm 1 percent). Highest districts central and south. Slight decrease expected. BLACK SCALE (Saissetia oleae) infested 12 percent of groves (norm 15 percent); 5 percent economic (norm 4 percent). All districts in very low range. Gradual increase expected in east and south districts. WHITEFLY population above normal for April. Current high adult population will decline and egg count will be at peak within next 2 weeks. APHID population has peaked and will rapidly decline. Scattered, important infestations will occur in young groves. MEALYBUG population will remain low. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

A SCARAB (Anomala sp.) - TEXAS - Heavy, localized populations severely ragging citrus leaves in Hidalgo County. (Texas Coop. Rpt.; Page).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on citrus in Yuma and Maricopa Counties. First spray program for control on young terminal growth beginning in Yuma County. (Ariz. Coop. Sur.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Locally heavy on orange trees in Colusa, Colusa County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Inspections in Laredo, Webb County, during March negative. Other surveys in Cameron, Hidalgo, Willacy and Zavala Counties also negative. (PPC, So. Reg.). MEXICO - In chemical control zone, total of 119,305 citrus trees on 3,365 properties inspected in Tamaulipas, Nuevo Leon, Sonora and Baja California during March with negative results. (PPC, Mex. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Trap catches during March were heaviest in several years; 86 specimens taken in Hidalgo, Starr, Dimmit and Webb Counties. Marked sterile flies still being recovered; 39 trapped during March, with one specimen trapped 4 miles from point of release. (PPC, So. Reg.). MEXICO - Total of 1,888 traps on 932 properties inspected 7,368 times during March in States of Baja California and Sonora with negative results. (PPC, Mex. Reg.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Total of 3,754 traps inspected 7,378 times in 14 States, Federal District and Territory of Quintana Roo. Trapping operations distributed over Mexico. (PPC, Mex. Reg., Mar. Rpt.).

GRAPEVINE APHID (Aphis illinoisensis) - ALABAMA - Light, early infestations appearing on grapes throughout central area. (McQueen).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Few larvae feeding on grape leaves in central area; adults continue to feed on fruiting buds. (Barwood, et al.).

TRUCK CROP INSECTS

TOMATO HORNWORM (Protoparce quinquemaculata) - TEXAS - Damaging tomatoes in localized areas of Hidalgo County. (Texas Coop. Rpt.; Meisch).

CUTWORMS - GEORGIA - Unspecified species continue a problem on tomatoes in Griffin area, Spalding County. (Dupree).

COLORADO POTATO BEETLE (Leptinotarsa decemliniata) - VIRGINIA - Adults active on potatoes on Eastern Shore; plants just emerging. (Hofmaster). FLORIDA - Moderate on stems and leaves of tomato at Bereah, Polk County (Snell, Denmark); and at Webster, Sumter County (Bentley, Apr. 15). TEXAS - Light, widespread populations reported on purple nightshade in Blanco County. (Texas Coop. Rpt.; Massey).

POTATO FLEA BEETLE (Epitrix cucumeris) - VIRGINIA - Some light damage noted on Eastern Shore. (Hofmaster).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - Severe on leaves of eggplant at Belle Glade, Palm Beach County. (Harris, Apr. 7).

A MITE - TEXAS - Heavy, local populations damaging watermelons in Robertson and Washington Counties. Determination pending. (Meisch)

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - This species and Feltia subterranea infested 46 percent of 200 cabbage plants sampled at Sanford, Seminole County; damage ranged light to heavy. (Desin). GEORGIA - Very light on cabbage in Cook County. (Johnson).

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Larvae in considerable numbers noted in field of cabbage in Mobile County. (Bolton, Seibels).

CABBAGE APHID (Brevicoryne brassicae) - VIRGINIA - Present on seed kale and collards in Norfolk area. (Hofmaster). FLORIDA - Infested 12 percent of 200 cabbage plants sampled at Sanford, Seminole County; damage light. (Desin).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Moderate numbers appearing on cabbage in St. Elmo area, Mobile County. Pest not seen in area for about 2 years. (Seibels, Bolton).

PEA APHID (Acyrthosiphon pisum) - DELAWARE - Averaged 2-4 per 10 sweeps on commercial peas throughout Kent and Sussex Counties. (Burbutis).

BEET LEAFHOPPER (Circulifer tenellus) - WYOMING - Survey in Washakie County revealed 0.5-4 overwintering adults per square foot of host area. Largest populations found in river-bottom areas on kochia and annual mustards. (Douglass, Marks).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Light on spinach on Eastern Shore; probably due to large numbers of aphids affected by Entomophthora sp. during fall of 1963. (Hofmaster).

THRIPS - NEW MEXICO - Unspecified species extremely light in onion fields checked in Roosevelt County. (N.M. Coop. Rpt.).

ASPARAGUS BEETLE (Crioceris asparagi) - ALABAMA - Few adults feeding and laying eggs on isolated asparagus in Lee County home garden. (McQueen).

A WEEVIL (Hyperodes texana) - TEXAS - Damaged plants noted in 9 of 10 carrot fields examined in Hidalgo County. Damage ranged light to moderate; however, no larvae found in any field. (Wolfenbarger, Meisch).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - CALIFORNIA - Larvae medium in raspberry canes in Chicago Park, Nevada County. (Cal. Coop. Rpt.).

A STRAWBERRY LEAF ROLLER (Olethreutes cespitana) - DELAWARE - Larvae rolled leaves of strawberry in southwest Sussex County, July 25, 1963. Collected by D. MacCreary at Bethel. Det. by D. Davis. This is a new State record. (Burbutis).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Few clipped buds noted on strawberries at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

STRAWBERRY APHIDS - NEW JERSEY - Populations general on strawberry in Hammonton area, Atlantic County. (Ins.-Dis. Newsltr.).

FLEA BEETLES - VIRGINIA - Some slight damage noted on newly set tomato plants on Eastern Shore. (Hofmaster). MARYLAND - Phyllotreta sp. adults feeding on young cabbage plants at Queenstown, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Phyllotreta cruciferae adults averaged 2 per 10 sweeps in commercial field of peas in eastern Kent County. (Burbutis).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to heavy on tobacco in the field in south central area. (Johnson).

WIREWORMS - GEORGIA - Unspecified species range light to heavy on tocacco in south central area. (Johnson). NORTH CAROLINA - Conoderus vespertinus damaged 92 percent of plants examined in 4-acre field in Robeson County. These plants set 3 weeks previous; earlier than others in area. (McIntyre, Mount).

BUDWORMS (Heliothis spp.) - GEORGIA - Light to moderate on tobacco in south central part of State. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in the field in southern area. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Live adult caught in cotton field in Lee County (Teague) and one live adult taken in Morgan County last of March (Jarrett).

A WEEVIL (Anthonomus grandis thurberiae) - ARIZONA - Few adults found feeding on terminal growth on two-leaf cotton in Pinal County. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - GEORGIA - Light to moderate on cotton in south central and southwest areas. (Johnson).

THRIPS - GEORGIA - Light on cotton in south central and southwest areas. (Johnson). ARIZONA - Frankliniella spp. light in cotton fields in Graham, Maricopa and Pinal Counties; heaviest on cotton planted with untreated seed. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence of moths from test cages at Safford, Graham County, continues slow; 8 moths emerged from cages during week. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Aerial surveys on Shoal Creek and Talladega districts of National Forests showed decrease in number of infested trees. Surveys in Tuscaloosa and Oakmulgee districts showed slight increase in number of infested trees per thousand acres. Other areas appeared relatively free of activity. GEORGIA - Outbreaks on Chattooga and Tallulah districts of Chattahoochee National Forest continuing at reduced level. Brood production high and serious potential exists. Efforts underway to treat all known infestations before spring emergence. Controls on Oconee National Forest suspended as populations reduced to endemic levels. Statewide survey revealed no activity; however, Ips spp. activity concentrated in few large spots but not considered to be of epidemic proportion. LOUISIANA - Aerial evaluation survey in January showed activity confined largely to loblolly pine-hardwood type in West Bay area of Allen Parish. Several infested trees found southeast of any previously known infestations, indicating slight increase in size of infested area. MISSISSIPPI - Increase in activity on Homochitto National Forest in fall of 1963 largely confined to trees previously attacked by Ips spp. Increasing number of primary attacks by D. frontalis observed this spring. Light infestations found on trees previously attacked by Ips spp. in northwest Copiah County in February. NORTH CAROLINA - D. frontalis active in several upper Piedmont counties. Activity increased since last fall in Davidson County; organized salvage and controls being continued in area. Few small, but vigorous spots present in Tusquittee district of National Forests. Broods appear to have survived winter and present potential threat for coming season. SOUTH CAROLINA - Populations in upper Piedmont districts of National Forests decreased below point where economic control feasable. Most serious activity on Francis Marion National Forest. Estimated 4,000 trees present in 2-square-mile area on Wambaw district in Charleston County. Spots currently restricted to low lying bays on Wambaw and Witherbee districts. TEXAS - Populations in southeast apparently at lowest level in several years. Cooperative aerial surveys show number of infested trees per thousand acres has declined. Scattered activity observed and reported from ground operations; 7 spots located in Tyler County

contain total of 34 trees. All infestations controlled. Activity continues at low level on Big Thicket district of Sam Houston National Forest. (South. For. Pest Rpt., April).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ARKANSAS - Activity of this species and Ips spp. about normal; no epidemic situation occurring. Rainfall and vigorous tree growth will have great influence on infestations throughout next few months. Potential for serious infestations and widespread damage present. Plans for effective salvage operations should be made so that action can be rapid if outbreak occurs in any locality. Most effective and practical control depends upon reducing source of infestation through good salvage operations. (Ark. For. Pest Rpt., April). ALABAMA - Winter mortality observed in many spots during January on Shoal Creek and Talladega Ranger districts in Cleburne, Calhoun, Clay and Talladega Counties. LOUISIANA - Increased activity reported on Vernon district of Kisatchie National Forest. Attacks found on low site not logged for several years. TENNESSEE - Responsible for scattered mortality of residual trees on recent timber sales on Cherokee National Forest. TEXAS - Heavy damage reported from southern Houston County on area of approximately 500 acres. Areas logged during last few months contained heaviest concentration of attacks. Control action initiated. (South. For. Pest Rpt., April).

ENGRAVER BEETLES (Ips spp.) - ALABAMA - Activity, as determined by aerial surveys in January over National Forest land in Cleburne, Calhoun, Clay, Talladega, Winston, Franklin and Lawrence Counties, killed approximately 8 trees per 1,000 acres; an 8-fold increase since September 1963. ARKANSAS - Ips spp., particularly I. avulsus, reached epidemic proportions in pine-production areas of State last fall. Due to higher than normal population levels, trees already weakened by beetle attack, drought conditions and burns, potential for outbreak situation this spring is great. Hazard condition not uniform over State but includes forests in all pine-production areas; namely, Ashley, Drew, Union, Scott, Stone, Cleveland, Dallas, Yell, Montgomery, and other counties. If moisture conditions continue below normal, new surge of activity can be expected in May. MISSISSIPPI - Activity on Homochitto National Forest declined due to improved moisture conditions. NORTH CAROLINA - Spots of up to 15 trees infested with I. avulsus observed in Morrow Mountain State Park. SOUTH CAROLINA - On upper Piedmont districts of National Forests, Ips spp. replacing Dendroctonus frontalis as primary causal agent of tree mortality. TENNESSEE - I. pini found infesting white pine in Tellico Plains area of this State, and in vicinities of Hot Springs and Asheville, NORTH CAROLINA. (South. For. Pest Rpt., April).

PALES WEEVIL (Hylobius pales) - ARKANSAS - Weevil activity increasing; collections from beetle traps show this species predominant. NORTH CAROLINA - First emergence of this species and Pachylobius picivorus occurred March 5 in eastern part of State. Recent evaluation of newly established plantation in eastern area of State showed number of injured seedlings ranged 4-8 percent on sites cleared in October 1963 and planted in January and February 1964; injury confined to sites previously supporting pine stands. (South. For. Pest Rpt., April).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Larvae feeding heavily upon needles of European larch at a Grant County location. (Wis. Ins. Sur.).

PINE NEEDLE MINER (Exoteleia pinifoliella) - DELAWARE - Nearly full-grown larvae common on Virginia pine in area of Kent County. (Burbutis).

BAGWORM (Thyridopteryx ephemeraeformis) - NORTH CAROLINA - Caused heavy defoliation of 5-acre white pine plantation in Buncombe County. (South. For. Pest Rpt., April).

PHYCITID MOTHS (Dioryctria spp.) - SOUTH CAROLINA - D. calrioralis responsible for loss of approximately 50 percent of longleaf pine cone crop on 55-acre seed production area on Francis Marion National Forest. (South. For. Pest Rpt., April). CALIFORNIA - Dioryctria sp. heavy on Monterey pine in Atherton, San Mateo County. (Cal. Coop. Rpt.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Emergence complete in southern area. Emergence was retarded by weather conditions until about March 22; by March 24, following few days of warm weather, majority of over-wintering pupae emerged as adults. Development of new pine growth has been slow, thus first-generation larvae will have limited new growth on which to feed. Therefore, degree of damage to current year's growth may be greater than in normal years when new growth rapid and vigorous. (Ark. For. Pest Rpt., April).

CONIFER APHIDS - OREGON - Cinara fornacula attacking Norway spruce in a Multnomah County nursery. Schizolachnus pineti (tentative determination) present in large numbers on Mugho pine in nursery in same county. (Larson). COLORADO - Colonies of Pineus strobi present on limber pine and causing damage. Det. by T. O. Thatcher. (Simpson). WISCONSIN - Cinara sp. eggs hatched recently on red pine near Mazomanie, Dane County. (Wis. Ins. Sur.). DELAWARE - Cinara sp. apterous forms common on Virginia pine needles in an area of western Kent County. (Burbutis). NEW JERSEY - Pineus strobi eggs hatching on pines. (Ins.-Dis. Newsltr.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - OHIO - Moderate to heavy on Colorado blue spruce at a Summit County nursery, northeast. (Kelly).

CONIFER SAWFLIES (Neodiprion spp.) - OHIO - N. sertifer eggs hatched near Lisbon, Columbiana County, northeast. (Neiswander). ARKANSAS - Egg hatch of N. taedae linearis observed March 13 south of Hampton, Calhoun County, and few miles further north in same county March 19. Field observations March 24 showed hatching 75-90 percent complete in southern half of Calhoun County. All larvae observed were first stage. This year's hatch indicates possibly heaviest infestation since bad years of 1946 and 1947. Egg deposits made in needles as much as two feet from limb tips. Defoliation may be heavy in local areas. Not only mature timber infested, but some artificial, even-age stands just reaching pulpwood size heavily infested. Foresters noting infestations on company holdings asked to plot affected areas, denoting varying degrees of severity. Efforts being made to obtain aerial survey of infested forest in order to define involved areas and severity of defoliation. Small scale experimental control tests underway to determine possible control techniques if needed. (Ark. For. Pest Rpt., April).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - CONNECTICUT - Hatching April 17 at East Hampton. (Gaines). Additional hatching observed in Guilford, Rocky Hill, Bristol, Canton and around New Haven. Considerable webbing found April 20 at Rocky Hill. Hatching probable in all but normally cooler parts of State. (Savos). DELAWARE - Tents noticeable on wild cherry throughout State. (Burbutis). MARYLAND - Numerous tents noted in wild cherry trees on farms and along highways in Anne Arundel, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Tents conspicuous on wild cherry in Pittsylvania and Charlotte Counties. (Dominick). Tents becoming conspicuous in Craig, Alleghany, Bath, Augusta, Rockingham, Shenandoah, Frederick, Warren, Fauquier, Culpeper, Madison, Greene, Albemarle, Rockbridge and Botetourt Counties. (Tarpley). ALABAMA - Approximately half-grown larvae feeding on cherry and peach in Perry County. As many as 4 tents noted in one peach tree. (Cain). MISSOURI - Early larval stages noted on wild cherry in Barry, McDonald and Jasper Counties, southwest; noted on a peach tree in Jasper County. (Houser, Thomas, Wood). OHIO - Larvae noted on chokecherry in Cincinnati, Hamilton County, southwest, April 13. (Rings). WISCONSIN - Eggs hatched by April 23 in Rock County, compared with April 16 in 1963 and April 26 in 1962. Feeding occurring on unopened buds and some webbing noted. (Wis. Ins. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Feeding on elm foliage in north central area. (Okla. Coop. Sur.). NEBRASKA - Total of 99 taken in light trap at North Platte, April 1-8, with 75 taken April 2. Total of 64 taken at same location April 9-17, with 50 taken April 11. (Pruess). NORTH DAKOTA - Emergence of females and males continues in southeast, but slow due to generally cool temperatures. (N.D. Ins. Sur.).

ELM SPANWORM (Ennomos subsignarius) - Egg mass surveys indicate low population in north GEORGIA and western NORTH CAROLINA; only light to moderate defoliation expected. (South. For. Pest Rpt., April).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Eggs and larvae heavy on willows in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ARKANSAS - Adults very active in northwest area; appears to be above normal. (Ark. Ins. Sur.). OKLAHOMA - Egg laying underway in Stillwater area, Payne County. (Okla. Coop. Sur.). IDAHO - Active, overwintering adults observed for first time this season at Parma, Canyon County. (Scott).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Larvae medium on azalea plants in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - FLORIDA - Severe on Jasminum sp. at Ft. Lauderdale, Broward County, April 16. (Clinton).

APHIDS - CALIFORNIA - Amphorophora nervata heavy on Arubtus unedo in Redwood City, San Mateo County. (Cal. Coop. Rpt.). ARIZONA - Medium aphid populations occurring on rose bushes in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Probably Amphorophora nervata, light to moderately heavy on roses in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). COLORADO - Aphid eggs fewer in numbers but well distributed on chokecherry, buckthorn and plum; no evidence of hatching. (Simpson). OKLAHOMA - Several species continue to buildup on variety of ornamentals throughout State. (Okla. Coop. Sur.). ALABAMA - Macrosiphum rosae continues to increase on roses in Lee, Dallas and other central counties. (Granberry et al.). FLORIDA - Acyrthosiphon porosum infesting stem, bloom and leaves of rose at Gainesville, Alachua County, April 16. (Martinez). GEORGIA - Unspecified species moderate on new growth of rose in Columbus area, Muscogee County (Greene, Apr. 15); infesting same host in Griffin area, Spalding County (Beckham). NORTH CAROLINA - Longistigma caryae infesting ornamental water oak at a Union County location. (Mangum, Mount). WISCONSIN - Anuraphis viburniphila eggs hatched April 17 at Middleton, Dane County; this is 5 days later than in 1963. (Wis. Ins. Sur.).

COCCIDS - MARYLAND - Aspidiotus juglansregiae infesting hemlock hedge at Queenstown, Queen Annes County. Pseudaulacaspis pentagona infesting Prunus sp. at College Park, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Ceroplastes ceriferus (?) continued to spread and is now major problem on ornamentals on Eastern Shore. (Hofmaster). FLORIDA - Phenacaspis cockerelli moderate on leaves of Strelitzia sp. at Merritt Island, Brevard County. (Levan, Apr. 14). Fiorinia theae severe on leaves of holly at Palmetto, Manatee County, April 15. Control recommended. (Bickner). TEXAS - Pseudaulacaspis pentagona damaging mulberry trees in Brazos County. (Randolph). COLORADO - Chionaspis furfura heavy on willow in Denver. (Kamal). ARIZONA - Light numbers of Pseudococcus sp. damaging some nursery stock in Casa Grande, Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - Lecanium persicae light on Sarcococca sp. nursery stock in San Jose, Santa Clara County. Pseudococcus aurilanatus heavy on Araucaria bidwillii in Woodside, San Mateo County. Pseudococcus obscurus nymphs and adults ranged light to heavy on Cattleya sp. and Epiphyllum sp. in San Carlos, San Mateo County, and medium on gardenia in Oroville, Butte County. (Cal. Coop. Rpt.). OREGON - Lepidosaphes ulmi infesting boxwood in Multnomah County. Eggs not hatching. Aspidiotus excisus heavy on imported variegated Chinese evergreen in Multnomah County greenhouse. (Nicolaison).

AZALEA LACE BUG (Stephanitis pyrioides) - GEORGIA - Moderate on azalea in Griffin area, Spalding County. (Beckham).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - FLORIDA - Severe on Ficus retusa at west Bradenton, Manatee County, April 16. (Bickner).

THRIPS - CALIFORNIA - Isoneurothrips australis and Thrips madronii light on flowers of Ceanothus prostratus in the City College grounds in San Francisco, San Francisco County. Frankliniella occidentalis medium on mustard flowers in Colusa County, and on Mesembryanthemum sp. in San Francisco, San Francisco County. (Cal. Coop. Rpt.). FLORIDA - Frankliniella bispinosa severe on blooms of azalea and Heliothrips haemorrhoidalis severe on leaves of croton at Fairvilla, Orange County, April 3. (Griffith).

WHITEFLIES - ALABAMA - Adults and immature stages becoming numerous and damaging foundation plantings around some Dallas County homes. (McQueen).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Pupation noted April 23 in American boxwood at Queenstown, Queen Annes County. (U. Md., Ent. Dept.).

SPRINGTAILS - CALIFORNIA - Onychiurus fimetarius and Lepidocyrtus cyaneus nymphs and adults medium on cattleya orchids in Golden Gate Park, San Francisco, San Francisco County, and light to medium on orchid roots locally in Woodside, San Mateo County. Entomobrya nivalis adults light on flowers of Ceanothus prostratus in San Francisco. (Cal. Coop. Rpt.).

SPIDER MITES - CALIFORNIA - Eotetranychus malvastris heavy on false mallow (Malacothamnus fasciculatus) in Botanical Gardens at Claremont, Los Angeles County. (Cal. Coop. Rpt.). FLORIDA - Tetranychus telarius severe on leaves of chrysanthemum at Orlando, Orange County, April 6. (Griffith).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - COLORADO - Adults, probably Aedes dorsalis, active in Larimer County. Two reports indicating moderate numbers. This species overwinters in storm sewers in Fort Collins area. (Daniels). NORTH DAKOTA - No snow pool species observed (Noetzel); Culiseta inornata emerged from overwintering locations in southeast (N.D. Ins. Sur.). MINNESOTA - Early spring Aedes, viz., A. spencerii, A. implicatus, A. stimulans and A. excrucians, present as third and fourth instars. A. cinereus and A. fitchii are in second and third instars. Spring rains resulted in an additional hatch of mosquitoes, partly A. vexans. (Minn. Ins. Rpt.). IOWA - Several specimens of C. inornata collected at Ames April 10-11. (Iowa Ins. Inf.). OHIO - First, second and third-stage larvae of A. stimulans collected in flood water at Swan Creek near Toledo, Lucas County. (Brockway). MARYLAND - Adults of A. cantator and A. canadensis continue to emerge in southern tidewater sections; no A. sollicitans noted on April 22. (U. Md., Ent. Dept.). FLORIDA - Anopheles crucians larvae collected at 2 locations in Gainesville, Alachua County, on april 15. (Hazard).

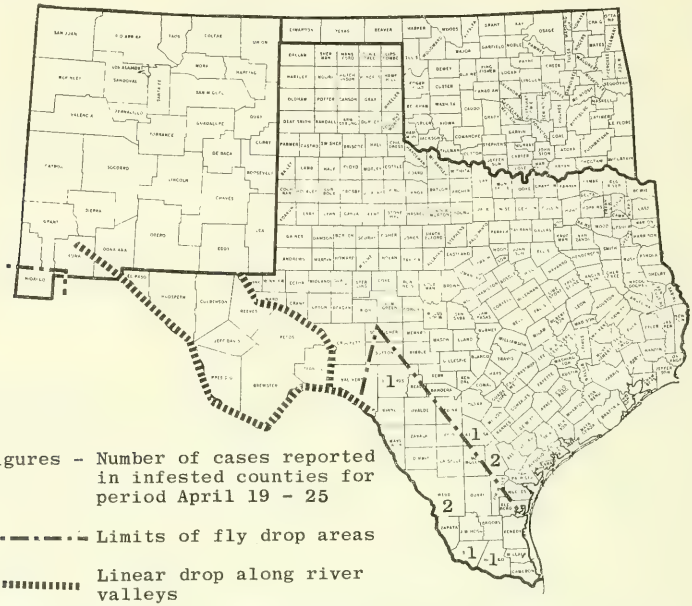
FACE FLY (Musca autumnalis) - MASSACHUSETTS - Emerged from hibernation; observed in warm, sunny places on fences and other objects. (Wave). VIRGINIA - Counts per beef animal 8 in Fauquier County, 1 in Warren County, 5 in Madison County and 2 in Augusta County. (Tarpley). VERMONT - Observed on cattle. (MacCollom). OHIO - Light populations observed on beef cattle at Wooster, Wayne County. (Miller). NORTH DAKOTA - Abundant in homes this past winter, particularly in southeast area. Single reports came from as far west as Carrington and as far north as Park River. (Noetzel).

HORN FLY (Haematobia irritans) - GEORGIA - Averaged 46 per animal on 114 head of Hereford beef animals examined in Putnam County. (Roberts, Apr. 4). OKLAHOMA - Populations continue low; counts of 10 per head noted on cattle in Pushmataha, McCurtain and Le Flore Counties. Increased in Noble County; 200 per head noted. (Okla. Coop. Sur.). MISSOURI - Light infestations on cattle in Barry and McDonald Counties, southwest. (Houser, Thomas, Wood).

SHEEP KED (Melophagus ovinus) - OHIO - Heavy infestations observed on ewes in Guernsey County, east central area. Keds averaged 50 per ewe in flock of 60 sheep. Both adults and puparia observed. (Galford). NEBRASKA - Light populations occur in small flocks. Keds may buildup in lambs with shorn ewes. (Bergman).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period April 19 - 25, a total of 8 screw-worm cases was reported from TEXAS. During this same period in 1963, Texas reported 80 cases and New Mexico 15 cases. A total of 96,260,250 sterile screw-worm flies was released during this period: 21,596,250 in Texas; 384,000 in New Mexico; and 74,280,000 in the Republic of Mexico. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 19 - 25

Limits of fly drop areas

Linear drop along river valleys

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - An average of 85 percent of animals infested in southwest; number per animal averaged 12. (Noetzel). MICHIGAN - Counts as high as 37 per steer (average 8 per animal) on yearlings from northern Michigan now in Lenawee County. (Stroud). OKLAHOMA - Considerable H. lineatum adult activity continuing around State. (Okla. Coop. Sur.). DELAWARE - Adults of H. lineatum flying on April 17; H. bovis larvae all dropped to ground by April 23. (Catts).

CATTLE BITING LOUSE (Bovicola bovis) - ALABAMA - Rather heavy on herd of cattle in Houston County. (Granberry).

HOG LOUSE (Haematopinus suis) - UTAH - Infesting some swine at Ogden, Weber County. (Knowlton).

TICKS - TEXAS - Following species found on 510 cattle and one horse on 43 premises within State during March: Amblyomma americanum, 24 lots; Dermacentor nigrolineatus, 2 lots; D. variabilis, 2 lots; Ixodes scapularis, 1 lot; Otobius megnini, 16 lots; D. nitens, 1 lot; and Boophilus annulatus, 2 lots. Latter two species obtained from animals within Fever Tick Buffer Zone. (Anim. Dis. Erad. Div., Anim. Insp. & Quar. Div.). OKLAHOMA - A. americanum counts light; ranged 5-12 per head on cattle in Pushmataha, McCurtain and Le Flore Counties. Rhipicephalus sanguineus becoming active in Stillwater area. (Okla. Coop. Sur.).

MINNESOTA - Dermacentor variabilis reported active in a wooded area north of Minneapolis-St. Paul area. (Minn. Ins. Rpt.). MARYLAND - Adults of D. variabilis appeared week of April 18 at several locations over State. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (Reticulitermes spp.) - NEW JERSEY - Swarms causing bulk of household pest inquiries. (Ins.-Dis. Newsltr.). MARYLAND - Winged forms received from several localities in Prince Georges County and Baltimore. (U. Md., Ent. Dept.). NORTH CAROLINA - R. flavipes swarming in large numbers in a Davidson County home during first half of April. (Wray). ALABAMA - Numerous swarms of R. flavipes continue to be reported from central areas. Swarming appears to be heavier than in 1963. (Baker et al.). FLORIDA - R. virginicus swarmed heavily at Tampa, Hillsborough County, on April 9. (Gresham). OKLAHOMA - Reticulitermes sp. swarming in Stillwater area. (Okla. Coop. Sur.).

BLACK CARPENTER ANT (Camponotus pennsylvanicus) - WISCONSIN - Winged forms noted at Oconomowoc, Waukesha County, April 18. (Wis. Ins. Sur.).

CARPENTER BEES - NEW JERSEY - Causing some concern to homeowners. (Ins.-Dis. Newsltr.).

WASPS (Polistes spp.) - MARYLAND - Several reports received of active wasps seeking nesting sites around buildings in Prince Georges County. (U. Md., Ent. Dept.).

BLACK CARPET BEETLE (Attagenus piceus) - OHIO - Annoying to homeowners throughout State. Adults most commonly reported. (Delaplane). COLORADO - Causing damage and requiring control measures locally in Fort Collins and Denver. (Thatcher).

CLOVER MITE (Bryobia praetiosa) - MARYLAND - Continues to annoy homeowners at several localities in Prince Georges County. (U. Md., Ent. Dept.). NEW YORK - Causing considerable complaints on buildings as overwintering adults become active. (N.Y. Wkly. Rpt., Apr. 20). VERMONT - Annoying homeowners. (MacCollom). MICHIGAN - Reports of annoyance to homeowners numerous. A mild, dry winter considered partially responsible. (Janes). WISCONSIN - Migrations into houses heavy in area of Dane County. (Wis. Ins. Sur.). NEBRASKA - Numerous reports received of activity in residential homes in southeast areas. (Bergman). UTAH - Entering homes in Utah and Weber Counties. (Knowlton).

BOXELDER BUG (Leptocoris trivittatus) - VIRGINIA - Unusually numerous this spring on Eastern Shore. (Hofmaster). MICHIGAN - Unusually high spring population of adults and nymphs evident. (Janes).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Heavy, widespread infestations causing annoyance by entering homes in Hidalgo County. (Texas Coop. Rpt.; Bente).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - FLORIDA - Severely damaged stored field corn at Belle Glade, Palm Beach County, April 7. (Harris).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Hippodamia convergens increasing rapidly in alfalfa in Maricopa, Pinal and Yuma Counties. (Ariz. Coop. Sur.). UTAH - Unspecified species occasionally noted in central area orchards and alfalfa. (Knowlton). WYOMING - Adults of several species appearing in alfalfa in Washakie and Hot Springs Counties. (Marks). TEXAS - Populations of unspecified species increasing on small grains in panhandle area. (Daniels). KANSAS - Small numbers of Hippodamia

convergens noted in alfalfa and wheat in north central and northwest areas. (Peters). MISSOURI - Coccinella novemnotata and H. convergens adults active in southwest. (Houser, Thomas, Wood). MICHIGAN - Adults of Coleomegilla maculata lengi numerous in wooded areas near Galien, Berrien County; species predatory on eggs of cereal leaf beetle (Oulema melanopa). (Hayward). NEW JERSEY - Large numbers of lady beetles present in alfalfa. (Ins.-Dis. Newsltr.).

LACEWINGS - MISSOURI - Chrysopa spp. adults noted in small grain and alfalfa in southwest. (Houser, Thomas, Wood). KANSAS - Small numbers of unspecified species observed in alfalfa and wheat in north central and northwest areas. (Peters).

DAMSEL BUGS (Nabis spp.) - KANSAS - Small numbers noted in alfalfa and wheat in north central and northwest areas. (Peters). ARKANSAS - Ranged 8-10 per 100 sweeps in Washington County alfalfa. (Ark. Ins. Sur.).

A FLOWER BUG (Orius insidiosus) - KANSAS - Small numbers noted in alfalfa and wheat in north central and northwest. (Peters).

A PREDACEOUS STINK BUG (Stiretrus fimbriatus) - MISSOURI - Feeding on larvae of eastern tent caterpillar in McDonald County, southwest. (Houser, Thomas, Wood).

SYRPHID FLIES - ARKANSAS - Adults very active in alfalfa in Washington County, northwest; 35-40 per 100 sweeps. (Ark. Ins. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Very numerous in Washington County alfalfa. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

TEPHRITID FLIES (Aciurina spp.) - CALIFORNIA - A. maculata and A. trixa larvae medium in stem galls of rabbitbrush in Floristan area of Sierra County, and A. maculata light in Vinton, Plumas County. (Cal. Coop. Rpt.).

ANTS - NEBRASKA - Mound building activity increasing in lawns in Lincoln, Lancaster County. (Bergman). TEXAS - Atta texana swarming in Guadalupe County. (Texas Coop. Rpt.; Massey).

WHITE-FRINGED BEETLES (Graphognathus spp.) - SOUTH CAROLINA - Collected for first time in Marlboro County. MISSISSIPPI - Found in Carroll and Yazoo Counties; first records for these counties. (PPC, So. Reg., Mar. Rpt.).

SLUGS - OREGON - Overwintering Deroceras reticulatum adults depositing eggs. Juveniles of D. reticulatum and young of Arion ater and Prophysaon andersoni abundant but activity and feeding damage retarded by cold weather. (Crowell).

Sticky-board Traps in Arizona - Average counts per board in Yuma County, April 6 and 13, respectively, as follows: Green peach aphid (Myzus persicae) 29.17 and 51.75; melon aphid (Aphis gossypii) 189.74 and 168.67; and beet leafhopper (Circulifer tenellus) 52.58 and 15.41. (Ariz. Coop. Sur.).

ADDITIONAL NOTES

MICHIGAN - CEREAL LEAF BEETLE (Oulema melanopa) - First general adult activity of season occurred on April 10 when 78° F. temperature recorded at grass level near Galien, Berrien County. Adults ranged 1-7 per 20 sweeps in grassy areas. (Ruppel).

CORRECTIONS

CEIR 14(15):323 and 14(17):393 - Credit to preparation of the highlight section of "Forest Insect Conditions in the United States - 1963" should be Insect and Disease Surveys, Forest Pest Control, State and Private Forestry, Forest Service, U.S. Department of Agriculture.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Catocephala prometheia (codling moth)	Chloridea (Heliothis) zea (corn earworm)	Estigmene acrea (salt-marsh caterpillar)	Parapsia diffusa (fall armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commutalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege sinialis (garden webworm)	Ostrinia nubilalis (European corn borer)	Perilissus scutellatus (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Prospoccoe sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera eridania (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 4/18-24			BL	2				2								12				31				Misc.
FLORIDA																								
Gainesville 4/22			BL													2	1		1					
GEORGIA																								
Tifton 4/9-15			BL						0	3								0	0					
Tifton 4/16-22			BL						0	2								0	0					
ILLINOIS (County)																								
Champaign 4/17-23	43-67	4.06"	BL	3												8				38				
KANSAS																								
Garden City 4/15, 18,26				1		1		2								3	1							
Hays 4/16, 21				1				1																
Manhattan 4/17-23				5				2								3	2			2				
Mound Valley 4/15, 18-20				25				1								18				108				
Wathena 4/14-15, 18-19				6				2								4				7				
MISSISSIPPI																								
Stoneville 4/18-24	61-84	1.47"	MV	15			8									66	6			90				
Stoneville 4/18-24	61-84	1.47"	BL	19			4									51	5			77				
MISSOURI																								
Portageville 4/1-15																3	1			11				
NEBRASKA																								
North Platte 4/9-18				9												10								
TENNESSEE (Counties)																								
Maury 4/14-20				2												8				54				
Robertson 4/14-20				1												2				7				
Cumberland 4/14-20				6												8	1			8				
Greene 4/14-20				5												5	2			16				
Blount 4/14-20				6												6				12				
Johnson 4/14-20				2												2	1							
TEXAS																								
Brownsville 4/16-22			6 BL	26			20		1497	793	2	27		911		11	25	19	16	1			596	
Waco 4/18-24			BL	59			3		88	0	12	0				66	20			123	7		8	
WISCONSIN																								
Middleton 4/17-23	38-77		BL	1												1				5				
Madison 4/17-23			BL	1												6				35				
SOUTH CAROLINA																								
Charleston 4/20-26	54-88	0.50"	BL	10			0		3	0	2	0				3	0	0	0	6			2	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 699th meeting of the Hawaiian Entomological Society held March 9, 1964.

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum (Marchal)) a newly established immigrant species, was found infesting Chinese banyan trees (Ficus retusa) at the Honolulu zoo in Kapiolani Park area and at the abandoned Coast and Geodetic Survey Station at Barbers Point during the first week of March. These records considerably extend the known range of this thrips on Oahu. (J. W. Beardsley). Dense populations were recently observed on Ficus benjamina. On February 7, 1964, it was observed on Ficus retusa in the Nuuanu Tunnel area. This is the first report of the pest on the windward side of Oahu. (J. Kim).

A PARASITIC TACHINA FLY (Trichopoda pennipes (F.)) - During January and February, numerous adults and full-grown nymphs of a scutellarid bug (Coleotichus blackburniae White) were collected at the State Park site on Roundtop on Acacia formosana. Several adults and a few nymphs bore eggs of T. pennipes, and two adult flies were subsequently reared from full-grown maggots which issued from C. blackburniae (koa bug). T. pennipes had previously been reared from C. blackburniae in laboratory experiments, and adult bugs with parasite eggs attached have been collected in the field; however, this is the first record of field parasitized bugs yielding adult flies. (J. W. Beardsley). On March 2, 1964, a male T. pennipes emerged from a pupa which had been recovered from C. blackburniae collected on Tantalus. This was followed by the emergence of a female T. pennipes from a pupa recovered from southern green stink bug (Nezara viridula (L.)) collected at Koko Head. This is the first recovery of this tachina fly since its release at Ewa on November 19, 1963. (C. J. Davis).

BARNACLE SCALE (Ceroplastes cirripediformis Comstock) was collected on Molokai during December 1963 by Dr. Beardsley and on Maui on passion fruit in February 1964 by Dr. Nishida. These constitute new island records for this species. (J. W. Beardsley).

AGROMYZID FLIES - Twenty-eight males and 27 females of Phytobia maculosa (Malloch) were reared from larvae on Erechtites valerianaefolia at Hilo, Kolekole Park, National Park (Volcano, Hawaii) and Tantalus, Oahu, during October and November 1962. One male and one female from Emilia sonchifolia at Hilo, Hawaii. Seven males and 21 females of Pseudonapomyza spicata (Malloch) from Stenotaphrum secundatum at MacKenzie State Park, Hawaii, during October 1962. These are all new hosts and determinations were made by Miss M. Neal of the Bishop Museum. (D. E. Hardy).

AN APHID (Thoracaphis fici (Takahashi)) was observed as heavy on a large banyan tree (Ficus benghalensis). Further investigation showed that the aphid and the sooty mold which covered a large portion of the tree were responsible for the poor growth condition. (J. Kim).

A STINK BUG (Brochymena quadripustulata (F.)) - Three live adults were collected among boards and packing material in a shed on the Masao Kaneshiro farm, Lualualei Valley, on February 13, 1964. This is the original site of infestation noted in October 1962. The adults would not feed in the laboratory on immature stink bugs, dipterous or lepidopterous larvae, but did feed on fresh string beans. (W. C. Mitchell).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum (Westwood)) - Farmers are experiencing difficulty with high populations on pole beans in the Waianae and Kahuku areas. (W. C. Mitchell).

Various stages of a phytophagus THRIPS (Parthenothrips draecaenae (Heeger)) were found to be heavy on foliage of croton (Codiaeum variegatum) at Hana, Maui, on February 26 by Dr. T. Nishida and Mr. F. Maramoto. Det. by Mr. K. Sakimura. This constitutes a first record for the island and on that particular host in Hawaii. (Rodriguez-Velez).

AN ANTHRIBID BEETLE (Araeocorynus cumingi Jekel) has been picked up by Federal Plan Quarantine Inspectors on 4 occasions. Once in Nucuma sp. seed ornament bought in Hawaii and taken to the mainland, from where it was returned on August 25, 1963, because of the infestation; 2 times in passengers' baggage leaving Hawaii on November 13, 1963; and one time on February 20, 1964. On November 24, 1963, four specimens were collected from a window screen at a beach home in Ewa; intensive search revealed no other specimens. These 4 specimens presumably emerged from beads bought in Laie, Oahu. Whether this anthribid beetle is established on Oahu is not yet known, as seed beads may have been imported. However, all reports from the mainland where this species has been intercepted are from seed beads bought in Hawaii. This may confirm Miss Mabel Chong's report in the September 1963 meeting of the Hawaiian Entomological Society (CEIR 13(41):1223) as a new insect record for Hawaii. (E. S. Shiroma).

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on February 28, 1964, follow. These reports are based on identifications received from Federal taxomonists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

A GIANT AFRICAN SNAIL (Achatina fulica Bowd.) twice at Honolulu, Hawaii, in baggage and in cargo.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) once in baggage at San Pedro, California, and once in cargo at Brownsville, Texas.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 81 times (75 times in baggage, 4 times in stores and 2 times in cargo): In Texas at Brownsville (3), Del Rio (3), El Paso (18), Eagle Pass (2), Galveston (1), Laredo (27), Roma (1) and San Antonia (1); in Arizona at Nogales (9); in California at Calexico (4) and San Ysidro (7); in Alabama at Mobile (1); in Florida at Tampa (1); and in New York at New York (1) and J. F. Kennedy International Airport (2).

A BRUCHID (Bruchus signaticornis Gyll.) (a pest of aritchoke in the Mediterranean area) in baggage at New York, New York.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 41 times (26 times in baggage, 13 times in stores and 2 times in quarters): In Massachusetts at Boston (7), in Illinois at Chicago (1), in Hawaii (5), in Pennsylvania at Philadelphia (3), in Florida at Tampa (2), in Puerto Rico at San Juan (2), in California at San Francisco (1) and San Pedro (1), in New York at J. F. Kennedy International Airport (2) and New York (16), and in Texas at Houston (1).

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) 10 times in baggage and once in mail at Honolulu, Hawaii.

OLIVE FRUIT FLY (Dacus oleae (Gmel.)) 13 times in baggage: In Michigan at Detroit (1), in Massachusetts at Boston (7), in New York at J. F. Kennedy International Airport (4) and New York (1).

CELERY FLY (Euleia heraclei (L.)) twice in stores; once each at New York, New York, and Boston, Massachusetts.

BEAN BUTTERFLY (Lampides boeticus (L.)) in stores of Pisum sp. at San Francisco, California.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) once in each of stores and baggage at Boston, Massachusetts.

A FRUIT-TREE SPIDER MITE (Tetranychus viennensis Zacher) (a pest of apples and pears in Europe and Japan) in baggage at New York, New York, and in stores at Seattle, Washington.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 9 times in miscellaneous cargo: In South Carolina at Charleston (3), in Louisiana at New Orleans (2), in New York at New York (3) and in Massachusetts at Boston (1).

A CRANE FLY (Tipula scripta Mg) (second interception record of this common European species) in baggage of moss plants at J. F. Kennedy International Airport, New York.

KHAPRA BEETLE (Trogoderma granarium Everts) (or probably that species) 70 times (11 times in stores, 11 times in ships' holds, 1 time in baggage and 47 times in cargo): In South Carolina at Charleston (8), in Virginia at Norfolk (2), in New York at New York (20), in Pennsylvania at Philadelphia (11), in Oregon at Portland (3), in Georgia at Savannah (2), in Maryland at Baltimore (7), in North Carolina at Wilmington (2), in Massachusetts at Boston (1), in Washington at Seattle (6), in Hawaii (2), in California at San Pedro (2), in Michigan at Detroit (1) and in Texas at Houston (2) and Galveston (1).

(Weather continued from page 396).

Wednesday at noon the cold front extended from Oklahoma to the Ohio River Valley, thence northeastward toward Lake Ontario. Several tornadoes occurred in Kansas and Oklahoma. In the Late afternoon and evening, about a score of tornadoes swept central and eastern Kansas and western Missouri. Violent weather continued through the last half of the week. Tornadoes, funnel clouds, large hail, and cloudburst rains occurred over parts of the central and southern Great Plains and lower Mississippi River Valley. Tornadoes were noted in Nebraska, Kansas, Oklahoma, Texas, Illinois, Mississippi, northwestern Florida, and southern Georgia.

A new storm intensified over the Great Basin. It produced snow and cold rain over the Great Basin and northern Rocky Mountains. At the end of the week, cloudiness and precipitation prevailed from Washington to Florida and from Texas to the Ohio River Valley. Sunny skies were seen over the Southwest and in New York and New England. (Summary supplied by U.S. Weather Bureau).

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Plant Pest Control Division
Federal Center Building
Hyattsville, Maryland 20781

April 1, 1964

PPC DIVISION MEMORANDUM NO. 801.31

To: PPC Field Stations

From: E. D. Burgess, Director

Subject: Procedures for handling pesticides safely

I INTRODUCTION

This memorandum is for Plant Pest Control Division employees who handle, transport, store, apply pesticides, clean up pesticide storage areas, and dispose of used containers and pesticide-packaging materials. This memorandum supersedes PPC Division Memorandum No. 801.31 dated May 14, 1963.

The label on the pesticide container will indicate the stringency of precautions to be taken while using the specific pesticide. Pesticides vary in type, chemical composition, and toxicity. When handling, storing, and applying pesticides, remember that pesticides are classified as being: very hazardous, moderately hazardous, or of a low hazard level. In other words, all insecticides are hazardous, differing only in the degree of hazard. Regardless of the level of toxicity, proper precautions must be followed in handling, mixing, applying, and storing.

The precautions given in this memorandum increase in importance with the increase in the level of toxicity of the pesticide involved. Read the label on the pesticide container with care. That information was prepared for your protection as a user and handler.

II YOUR RESPONSIBILITY AS AN EMPLOYEE

A Follow safety instructions as outlined by your supervisor.

B Handle pesticides safely and in accordance with label instructions.

C Use and maintain the protective equipment as instructed by your supervisor.

D Consult with your supervisor regarding treatment if you feel ill.

E Report to your supervisor any on-the-job pesticide handling or use procedure that you believe to be unsafe.

F Remember that carelessness with pesticides cannot be tolerated because other employees may be affected.

III PESTICIDES CAN BE USED SAFELY

Everyone who works with pesticide chemicals--the farmer, the aerial applicator, the home gardner, the nurseryman, the housewife spraying her house plants, and even warehouse and trucking personnel, should know the precautions which must be taken to protect themselves and others from the effects of the more highly toxic pesticides. It is to our interest as Plant Pest Control Division representatives to set the example in demonstrating that pesticides can be used safely.

IV USE THEM PROPERLY

Pesticides properly used are valuable tools. Select for the specific need and use correctly. Before starting the application on any pesticide program, you must understand how the work is to be done. Pests can be more effectively dealt with at some stages of their life development than at other periods, therefore, select the stage most applicable to control measures. Our operations must be in conformity with the latest Plant Pest Control Division instructions and regulations governing their use.

V THE LABEL IS IMPORTANT

Become familiar with the information printed on the label.

The manufacturer of pesticide chemicals is required by law to identify and label each container of his product. This label lists the chemicals, the percentage of active ingredients, the approved usages, safe rates and time of application, mixing and application instructions, necessary precautions, and first-aid treatment required when an individual is suspected of being over exposed to the pesticide.

It is most important that you read the label and understand for what purpose and how the pesticide can be safely used. Remember, pesticides are poisonous, and may, if not correctly used, injure man, animals, and beneficial insects. Make sure you have the correct pesticide, use it in the proper formulation, apply it as directed, and make certain that it is used at recommended dosages.

Your actions afford you the opportunity to demonstrate your ability to use pesticides safely, correctly, and effectively for the benefit of yourself and others.

If you have any questions regarding the safest way to conduct your work assignment, consult your supervisor.

VI TRANSPORTING AND STORING PESTICIDES

Pesticides are not to be carried in vehicles used for passenger transport unless special precautions are taken to prevent spillage and contamination of vehicle with fumes.

Pesticide chemicals, in open or unopened containers, must not be stored in rooms that are used for storage of feed or food products.

Avoid contact with pesticides and empty containers that have been used for pesticide storage or transportation. If handling is necessary, follow label precautions.

VII PROTECTIVE EQUIPMENT IS FOR YOUR PROTECTION

Respirators or gas masks must be worn when irritating or toxic vapors or dusts are present in the work area. It is extremely important that the filter be appropriate for the pesticide involved. (See PPC Division Control Manual, 807-85, Respiratory Protective Devices) When goggles are required they must fit the face snugly. Gloves, rubber or plastic aprons, and specially treated clothing represent other protective items. Gloves, goggles, masks, etc. will be furnished by the Division. Do not hesitate to request such equipment from your supervisor when it is needed.

All that any of this equipment can do is to keep the toxic material from contact with the skin, out of the eyes, or filter it from the air being breathed. Protective equipment is good only as long as the man using the device does his part to correctly use and maintain the equipment. Respirator filters must be changed as often as the situation warrants.

Instructions for sanitizing protective equipment is contained in PPC Division Memorandum No. 801.29.

VIII HOW TO DISPOSE OF PESTICIDE CONTAINERS

Empty containers used for highly toxic pesticides must be completely destroyed so they cannot be used again as a container or salvaged for other use. Except containers which remain the property of the supplier.

Disposal methods must not leave chemicals on the surface of the soil, where ground water may carry them into streams or ponds.

Bags or cardborad containers should be burned and the ashes buried. Keep out of the smoke while the containers are being burned.

Glass pesticide containers should be broken and buried after they have served the original purpose.

All metal containers should be demolished beyond use and then buried at a place where there will be no danger of pond or stream pollution.

Dumps using the land-fill disposal method are good sites for disposal of metal containers. Adequate precaution must be taken at the dump to assure safe coverage of the containers.

It should be clearly understood that the pesticide containers are not to be left available for miscellaneous use by farmers, ranchers, or others such as dealers in scrap metal Exceptions can be made only if Division Director approves the action.

IX SAFETY IS IN YOUR HANDS

Avoid splashing or spilling any of the pesticide on skin or clothing. If this should happen, be ready to wash immediately with plenty of soap and water if the label so recommends. Contaminated clothing must be washed daily after working with pesticides. Wear clothing which can be easily washed each day. When working with a highly hazardous material, have a change of clothing available at work site.

When spraying or dusting in enclosed areas, wear an approved type of respirator or appropriate gas mask equipped with the proper filter whenever the label on the original pesticide container directs such action. Change filters frequently as needed. It is safer to use a new filter than take a chance on a used one. Equip gas masks with logbook to show time used and time remaining on canister. When working outside, always avoid the drift of the pesticide by working on the side from which the wind blows use a respirator or mask and protective clothing as required. Be sure protective equipment is available before starting the job.

If you or a coworker becomes ill when working with a pesticide, even when all precautions appear to have been taken, stop at once and request examination or treatment. A few of the chemicals used as pesticides have cumulative effects and daily exposure may be tolerated with no visible symptoms until a large accumulation has been received. Occasionally, workers after repeated exposure to a chemical, become allergic to it and are thereafter unable to work with formulations containing that material.

X FOLLOW THESE RULES

When using a pesticide chemical, know which pesticide is the most feasible for the situation needing treatment.

Read the label on the container and follow recommended safety practices.

Know the correct dosage and mixing requirements to prevent damage to plants and animals.

Use the respirator, gloves, or other protective equipment as recommended.

When applying dusts or sprays, work from a position which will keep the pesticide drift from falling on the operator.

Keep children or irresponsible adults, pets, and livestock out of loading or storage sites, and areas in which application is in process. These precautions are extremely important when using highly toxic pesticides.

Wash hands immediately after contact with pesticides, and before smoking or handling food. Do not eat, drink, or smoke while in the act of using pesticides.

Select sites for loading and storage that will prevent contaminating streams, ponds, cisterns, food stocks, or crops adjacent to work area.

Pick up and safely dispose of empty pesticide bags or containers immediately after use.

Never use milk or beverage bottles, or other types of food containers for storage of pesticides.

Clean up spilled pesticides at once.

Immediately remove clothing contaminated by accidental spillage. Change clothing and shower thoroughly after working with pesticides.

Become familiar with first-aid treatment needed in case of pesticide poisoning.

Know where and how medical help can be obtained as soon as needed if you or a coworker becomes ill as a result of handling pesticides.

Remember that experienced operators continuously keep the following points in mind:

1 All pesticides may be used safely.

2 You must follow the prescribed safety measures when working with pesticides.

XI MR. SUPERVISOR--IT'S YOUR RESPONSIBILITY

A To see that each employee receives adequate instructions and understands the importance of safe handling of the pesticide involved in this operation.

B To provide the essential protective equipment and instructions necessary to assure correct usage.

C To make advance arrangements with local medical service for immediate emergency treatment in case of over exposure to toxic pesticides and to inform employees how and where to obtain emergency treatment if such becomes necessary. Refer to section XII.

D To assure that soap, water, and towels are available at the job site for washing hands, face, and eyes as the job need may require. This is also required of the pesticide contractor in the PPC contracts.

E To locate disposal site and furnish instructions for disposal of used containers and other pesticide-packaging materials.

F To provide for storage sufficient to protect the pesticides from children as well as from use by unauthorized adults.

XII ESSENTIAL MEDICAL AID INFORMATION

Preventing pesticide injury is easier than providing the paper work and explanations required by a careless act resulting in over exposure to a pesticide.

A Antidotes for pesticides. The number following the pesticide name refers to the appropriate antidote instructions found following this pesticide listing.

Aldrin - 2
Ammate - 3
Ammonium sulfamate - 3
Bidrin - 4
BHC - 2
Black leaf 40 - 2
Calcium arsenate Paris green - 2
Calcium cyanamide - no need for antidote (Ingestion of alcohol following extensive application of chemical may cause vaso-motor reaction.)
Carbon disulfide - 6
Ceresan - 3

Chlordane - 2
Chloropicrin - 6
Corrosive sublimate - 3
Cryolite - 2
DDD - 2
DDT - 2
DDVP - 4
Dichloropropane-dichloropropene - 6
(D-D Mixture)
Dieldrin - 2
Dimethoate - 4
Dinitro soluble oil - 5
DN Dusts - 5
Dorlone - 6
Dowfume W-85 - 6
Dow General, Sinox - 5
EB-5 - 2
Endrin - 2
Ethylene-dibromide - 6
Ethylene-dibromide-chlordane - 2 and 6
GC-3707 - 4
Guthion - 4
Heptachlor - 2
Hydrochloric acid - 1
Hydrogen cyanide gas - 7
Lindane - 2
Malathion - 4
Methyl bromide - 6
Methyl parathion - 4
Methoxychlor - 2
Mirex - 2
Mylone W-85 - (4, omit atropine treatment)
Naled (Dibrom) - 4
Nemagon - 6
Nicotine sulphate - 2
OMPA - 4
Panogen - 3
Parathion - 4
Pentachlorophenol - 2
Phorate (Thimet) - 4
Phosdrin - 4
Phosphoric acid - 1
Sevin - 4
Sodium arsenite - 2
Sodium fluosilicate - 3
Sodium fluoride - 2
Standard lead arsenate - 2
Sulfuric acid - 1

Telone - 6
TEPP - 4
Thimet - 4
Toxaphene - 2
Trithion - 4
Vapam - 6
Zectran - 4
2, 4-D - 2
2, 4, 5-T - 2

Antidote No. 1: Call physician immediately.
Internal: Give 20 to 30 cc. (2/3 to 1 oz.) of Milk of Magnesia or preferably aluminum hydroxide gel well diluted with water. If these are not available, use whites of 2 or 3 eggs, well beaten. Give large quantities of water.
External: Wash with water, apply moistened sodium bicarbonate. If eyes are involved, flush with water, then with 1% sodium bicarbonate.

Antidote No. 2: Call physician immediately.
Internal: Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear, then give 2 tablespoonfuls of Epsom Salt or Milk of Magnesia in water and plenty of milk and water. Have the victim lie down and keep quiet.
External: Wash with soap and water.

Antidote No. 3: Call physician immediately.
Internal: Give milk or white of egg beaten with water, then a tablespoonful of salt in warm water and repeat until vomit fluid is clear. Repeat milk or white of egg beaten with water.
External: Wash with soap and water. In case of contact remove all contaminated clothing immediately and wash skin with soap and plenty of water. If burning or blistering of skin results, get medical attention. If eyes are involved, flush with water for at least 15 minutes, get medical attention.

Antidote No. 4: Call physician immediately.
Internal: Induce vomiting by finger down throat or tablespoonful of salt in a glass of warm water. Repeat until vomit fluid is clear. Give plenty of milk or water. Atropine (.01 gr. each) in large doses should be administered by physician. Have victim lie down and keep quiet.
External: Remove from contaminated air. Remove contaminated clothing and immediately wash skin with soap and water. Do not reuse clothing until completely decontaminated. If breathing becomes impaired be prepared to start artificial respiration instantly.

Antidote No. 5: Call physician immediately.
Internal: Give tablespoonful of baking soda in warm water, repeat until vomit fluid is clear.
External: Wash with soap and water.

Antidote No. 6: Call physician immediately.
Remove promptly from contaminated atmosphere. Quickly remove any contaminated clothing. Give artificial respiration if breathing has stopped. Keep victim lying down and warm.

Antidote No. 7: Call physician immediately.
Carry victim to fresh air. Have him lie down. Remove contaminated clothing but keep victim warm. Start treatment immediately. If inhaled: Break an amyl nitrite pearl in a cloth and hold lightly under nose for 15 seconds. Repeat five times at about 15 second intervals. Give artificial respiration if breathing has stopped. If swallowed: Break an amyl nitrite pearl in a cloth and hold lightly under nose for 15 seconds. If victim is conscious or when consciousness returns, give a tablespoon of salt in a glass of warm water and repeat until vomit fluid is clear. Repeat inhalation of amyl nitrite five times at 15 second intervals. Give artificial respiration if breathing has stopped.

NOTE

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PATIENT

ACIDS:
Flush eyes with water for approximately 15 minutes, get medical attention.

NICOTINE:
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes, for eyes get medical attention. Remove and wash clothing before reuse.

B Know where to obtain emergency treatment. (Supervisor will supply applicable information to crew members prior to beginning of on-site operations). (See Control Manual, 807.86, Safe Handling of Chemicals and Emergency Treatment).

Contact the nearest location on the following listing in case you or a coworker becomes over exposed to one of the more highly toxic pesticides. (Quick availability to medical help is essential. Therefore, the listing need not be restricted to BEC designated physicians).

Dr. or Medical Unit _____

Address _____

Telephone number _____

Dr. or Medical Unit _____

Address _____

Telephone number _____

Dr. or Medical Unit _____

Address _____

Telephone number _____

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VOL. 14 No. 19 May 8, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 May 8, 1964 Number 19

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL recorded for first time in 10 southern Illinois counties, and what was believed to be this species found in 2 Missouri counties. Adult and larval populations increasing rapidly in southeast Ohio; damaging numbers reported from Maryland and Delaware; and controls applied for second time in Prince Edward County, Virginia. Damage to untreated alfalfa showing in Pennsylvania. Second-stage larvae of alfalfa weevil active in Douglas County, Nevada, and egg laying underway in Larimer County, Colorado. (pp. 429, 451). Another WEEVIL (Hypera brunneipennis) heavy on alfalfa in Lompoc area of Santa Barbara County, California. (p. 430).

PEA APHID heavy on alfalfa in parts of southern Kansas; moderate to heavy numbers causing honeydew on alfalfa in some north central and south central Oklahoma counties; and continues to range light to heavy on alfalfa in Yuma, Maricopa and Graham Counties, Arizona. (p. 430). SPOTTED ALFALFA APHID generally light. (p. 431). LYGUS BUGS increasing slowly on alfalfa in Arizona, and TARNISHED PLANT BUG heavy on clover and vetch in south, central and northern areas of Alabama. (p. 431). Nymphs of MEADOW SPITTLEBUG forming spittle masses at some places in Ohio. (p. 432). VARIEGATED CUTWORM light to heavy in fields of vetch and small grains over large portions of Texas, and moderate to heavy populations of ARMYWORM reported in small grains in Denton, Collin, Grayson, Kaufman and Navarro Counties of same State. (p. 433).

BEET LEAFHOPPER averaged 0.25 per square-foot sample of host area in Washakie and Hot Springs Counties, Wyoming; controls anticipated to prevent movement to sugar beet fields. (p. 439).

DOUGLAS-FIR TUSSOCK MOTH populations in Latah County, Idaho, appeared confined to ridge tops; defoliation expected to be greater during 1964 than in 1963. (p. 422). Larvae of EUROPEAN PINE SAWFLY active in Michigan, Ohio and Illinois. (p. 443).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

CLOVER ROOT BORER adults in Delaware; ALFALFA PLANT BUG nymphs in southeast and southwest Illinois; CORN EARWORM larvae on alfalfa in several Oklahoma counties; ARMYWORM larvae in southeast Kansas and southern Illinois; ORIENTAL FRUIT MOTH adults at Vincennes, Indiana; RED-BANDED LEAF ROLLER adults in New York, Connecticut and Mighigan and first-generation eggs hatched in Vincennes area of Indiana; PLUM CURCULIO adults on apples in Delaware and on cherries in Ohio; COLORADO POTATO BEETLE adults active in Washington and Delaware; PACIFIC COAST WIREWORM adult males in Washington; ONION MAGGOT adults in Idaho; PINE TUSSOCK MOTH larvae in Bayfield County, Wisconsin; ELM LEAF BEETLE adults in Kansas, Delaware, Ohio and Virginia on elms; SMALLER EUROPEAN ELM BARK BEETLE adults active in Kansas; GYPSY MOTH eggs hatching in Connecticut and Pennsylvania; BIRCH LEAF MINER adults in Oregon and New Jersey; and DUSKY BIRCH SAWFLY adults in Wisconsin.

DETECTION

First State records were ALFALFA WEEVIL (Hypera postica) in Illinois (p. 429); REDBERRY MITE (Aceria essigi) in Florida (p. 439); ROSE APHID (Macrosiphum rosae) in Florida (p. 445); PURPLE-SPOTTED LILY APHID (Macrosiphum lilii) in Florida (p. 445); and an APHID (Neotoxoptera formosana) in Colorado (p. 449). New county records were PEAR PSYLLA (Psylla pyricola) in Tulare County, California (p. 437), and the APHIDS (Vesiculaphis caricis and Amphorophora azaleae) on azalea in Sacramento County, California (p. 445).

CORRECTIONS and ADDITIONAL NOTES

See page 451.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 446). Total of 7 cases reported in Texas during the period April 26-May 2. No screw-worm infestations reported from New Mexico, Oklahoma, Arkansas nor Louisiana this year.

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1963. (p. 453).

Survey Methods for Survey Entomologist - Corn Rootworm (Diabrotica spp.) Loss Survey. (pp. 455-458).

Reports in this issue are for week ending May 1 unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MAY 1964

The Weather Bureau's 30-day outlook for May calls for temperatures to average below seasonal normals west of the Continental Divide and also along the Middle and south Atlantic coasts. Above normal temperatures are predicted for the remainder of the Nation, except for near normal in New England, the Ohio Valley, the central Plains, and the eastern slopes of the Rockies.

precipitation is expected to exceed normal over the Far West and Missouri Valley. Subnormal amounts are indicated over the Southern Plains, Upper Lakes and in coastal areas of the North and Middle Atlantic States and Gulf of Mexico. In areas not specified near normal rainfall is in prospect.

WEATHER OF THE WEEK ENDING MAY 4

Cloudy, rainy weather continued over the eastern half of the Nation with especially heavy rains in Georgia and neighboring States. A late season snow storm brought several inches to the northern Rocky Mountains over the weekend. Precipitation totals exceeded 2 inches over most of Tennessee, Alabama, Georgia, South Carolina and Florida. Amounts ranged widely in those States: 1 to 6 inches in Tennessee, 2 to 6 inches in Georgia, and numerous locations in Alabama and Florida received more than 4 inches. The Great Lakes region and most of the Appalachians received more than 1 inch of rain during the week. Elsewhere over the U.S., the weekly precipitation totals were generally less than 1 inch. Some scattered localities received more. For instance, Pierre, South Dakota, 4.39 inches, and Cody, Wyoming, 3.23 inches. This was the second month that rains were very heavy in the Alabama and Mississippi area with 2 months totals of more than 20 inches at some locations. April rain fall was deficient from western Kansas, western Oklahoma and northwest Texas westward as far as California.

Temperature averages were above normal over the Texas high plains, most of Oklahoma, western Kansas, over the Ohio River Valley and near the Great Lakes. Temperatures averaged below normal from the Pacific coast to the Rocky

(Continued on page 441.)

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - ILLINOIS - Adults first collected near Cave-in-Rock, Hardin County, April 24 and later same day near Vienna, Johnson County, by Dr. Richard Dysart. Determined by Dr. Milton W. Sanderson and Dr. Dysart and confirmed by R. E. Warner. These were the first records for the State. During period April 27-30, adults collected in Massac, Pulaski, Alexander, Union, Jackson, Williamson, Franklin and Pope Counties; counts varied 0-7 per 100 sweeps of 15-inch net in alfalfa. Limited surveys in Randolph, Perry, Wayne, Edwards, White and Gallatin Counties negative. Very little alfalfa grown in 4 latter counties. (Ill. Ins. Rpt.). MISSOURI - Larvae, believed to be this species, swept from alfalfa in Pemiscot County, southeast area, on April 29; 200 per 100 sweeps. Damage to alfalfa moderate. Adults, thought to be this species, reported from Cape Girardeau County, southeast. (Houser, Thomas, Wood). OHIO - Adult and larval populations increasing rapidly in southeast area alfalfa. (Blair). Feeding observed on 10-50 percent of alfalfa in Lawrence County, south central area; more heavily infested spots with 5-6 larvae and 5-6 adults per sweep. (Crawford). Adults collected in Guernsey County, east central area; no larvae found. (Share). Active adults and many small larvae easily collected in Washington County, southeast. (Gehres). Adults 2 and larvae 12 per sweep in Chesterhill area of Morgan County, southeast; 30 percent of alfalfa showing damage. (Easterling). MASSACHUSETTS - Adults ranged 2-6 per 100 sweeps in alfalfa in New Marlboro, Berkshire County, April 27. First report of season. (Shaw). DELAWARE - Larval feeding injury noticeably increased in untreated alfalfa in most areas of State. (Burbutis). MARYLAND - Larvae built up to damaging numbers on alfalfa in Anne Arundel, Prince Georges and Montgomery Counties. (U. Md., Ent. Dept.). VIRGINIA - First noted on alfalfa in southern Page County on April 16; counts 15-20 per sweep in area on April 20; controls started on April 23. Heavy infestations also encountered in several red clover fields in Page County. (Saunders, Apr. 23). Larvae continue to cause damage to alfalfa throughout Prince Edward County; good percentage in early instars. Practically all farmers applying controls for second time. As usual, larvae also infesting ladino clover. (Peery, Apr. 24). Larval infestations heavy throughout Carroll County. (Tabor, Apr. 24). Larvae infesting approximately 75-80 percent of plants in untreated alfalfa in Smyth County; practically no damage observed in fall-treated alfalfa checked. (Eller). Larval infestations ranged medium to severe throughout Scott County in both untreated and fall-treated fields. Some controls now being applied. (Gillespie). Larvae averaged 27.2 per square-foot pan counts in 5 Montgomery County fields; heaviest infestation 43.3 larvae per square-foot pan count. (Pienkowski). SOUTH CAROLINA - Heavy infestations expected in Saluda County. (Nettles et al., Apr. 21). Properly applied controls giving excellent results in Laurens County; otherwise, infestations present. (Massey, Apr. 16). GEORGIA - Larvae 78 per sweep on untreated alfalfa in Polk County; first instar to adult present. Larvae 80 per sweep in Franklin County field; first instar to adult present. Alfalfa properly treated last fall in excellent shape. Most alfalfa ready to cut. (Johnson). COLORADO - Egg deposition underway on alfalfa in Larimer County. (Jenkins). WYOMING - Adults averaged 2 per square foot in Fremont County alfalfa and one per square foot in alfalfa in Washakie and Hot Springs Counties. (Marks). UTAH - Adults active in Davis and Salt Lake County alfalfa; marking new growth leaves. (Knowlton, Apr. 28). Adults active at Scipio, Millard County. Adults have not been very active in Beaver, Iron, Kane, Garfield or Sevier Counties. Only light adult feeding observed. Full-grown larvae found in St. George-Hurricane area, but scarce and one-quarter grown larvae found at Kanab, Washington and Kane Counties. (Knowlton, May 2). NEVADA - Second-stage larvae averaged 20-30 per sweep in Jacks Valley, Douglas County (Atencio, Weaver), and 1-2 per crown in southern Washoe County (Bechtel, Lauderdale). IDAHO - Adult populations very low in Canyon County in fields checked. (Bechtolt). WASHINGTON - Adults scarce in Asotin County; one egg found April 27. (Brannon). One adult collected at Wawawai, Whitman County, on April 25. (Johansen).

CLOVER LEAF WEEVIL (Hypera punctata) - OHIO - Larvae observed attacking red clover in several west central counties; few adults found. (Lyon). ILLINOIS - Larvae varied 16-24 (averaged 21.3) per square foot in west district and 4-20 (averaged 12) in west-southwest district. (Ill. Ins. Rpt.). IOWA - Larvae attacking alfalfa and red clover in Henry County; 3-5 very small larvae in trash at base of plants. Considerable leaf feeding evident. (Iowa Ins. Inf., Apr. 28). MISSOURI - Ranged 0-1 per plant in southeast area; all infected with a fungus. Damage difficult to detect. (Houser, Thomas, Wood). KANSAS - Occasional larva observed on alfalfa in southeast. (Peters).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Numerous adults feeding and laying eggs in crimson clover locally in Talladega, Talladega County, on April 22; 1-5 larvae, first and second stages, on seed spikes in early bloom stage. (McQueen).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Noticeable at Talladega, Talladega County; practically none found on crimson clover or vetch in Houston, Henry, Barbour or other southeastern counties. (McQueen).

A WEEVIL (Hypera brunneipennis) - CALIFORNIA - Heavy in alfalfa plantings in Lompoc, Santa Barbara County. (Cal. Coop. Rpt.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Adults not so abundant in Yamhill and Washington County clover fields as in 1963. (Prescott).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - WASHINGTON - Adults notching sweet-clover leaves in Asotin and Whitman Counties. (Brannon, Johansen).

CLOVER ROOT BORER (Sitona hispidula) - DELAWARE - First adults of season present on alfalfa in one area of Kent County. (Burbutis).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Considerable egg laying reported in Brazos County vetch fields. (Randolph).

CLOVER STEM BORER (Languria mozardi) - ALABAMA - Few adults swept from crimson clover in Dallas, Lowndes, Macon and Talladega Counties. Apparently, buildup to damaging numbers never occurs in State. (McQueen). ILLINOIS - Adults common in clover and alfalfa in west, west-southwest, southwest and southeast districts. (Ill. Ins. Rpt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpuncta howardi) - ALABAMA - Adults quite plentiful on crimson clover and alfalfa throughout State. (McQueen). GEORGIA - Light on corn in Bulloch County. (Brinson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Few adults swept from crimson clover in Talladega County. (McQueen).

PEA APHID (Acyrthosiphon pisum) - KANSAS - Counts in alfalfa ranged from 25 to about 1,500 per sweep. Counties with heaviest counts include Cowley and Chautauqua, southern area. These counties experiencing droughty conditions which are compounding effect of aphids. Some early cutting or application of controls indicated since damage is appearing. (Peters). OKLAHOMA - Moderate to heavy numbers causing honeydew on alfalfa in some north central and south central counties. Some early harvest and chemical controls initiated. Lighter, nondamaging populations present in east central, southeast and southwest areas; counts 50-500 per 10 sweeps. (Okla. Coop. Sur.). TEXAS - Infestations light in Brazos County vetch and alfalfa (Randolph) and in Denton County vetch (Turney). NEW MEXICO - Infestations reported light throughout State. (N.M. Coop. Rpt.). COLORADO - None found on alfalfa in Mesa County. (Bulla). UTAH - Moderately numerous on alfalfa in Leeds area of Washington County. (Knowlton). ARIZONA - Populations continue to range from light to heavy in Yuma, Maricopa and Graham County alfalfa. (Ariz. Coop. Sur.). WASHINGTON - First and second instars attacking alfalfa grown for seed at Brownstown, Yakima County; ranged 0-5 per 60 tips. Plants now 4-8 inches high. Up to 9 per tip noted on alfalfa grown for

seed at Gardena Bench, near Umapine, Walla Walla County; less than 5 percent alates, most first and second instars. Growth retarded in one field. (Featherstone, Halfhill; Apr. 27). MISSOURI - Declined in southeast due to predators and hot weather; ranged 0-50 per 100 sweeps in alfalfa and hairy vetch. (Houser, Thomas, Wood). ILLINOIS - Varied 0-1,600 per 100 sweeps (averaged about 400) in west, west-southwest, southwest and southeast districts. Predators, parasites and disease common, especially in southwest and southeast districts. (Ill. Ins. Rpt.). WISCONSIN - Light, ranged from 1 per 40 sweeps to 10 per sweep; half-grown nymphs collected as far north as Outagamie County. (Wis. Ins. Sur.). OHIO - Nymphs and stem mothers found in southwest area forage fields. Light populations usually found, 25 per 50 sweeps of alfalfa near Dayton, Montgomery County. (Lyon). DELAWARE - Counts on alfalfa average between 1,000 and 2,000 per 100 sweeps in Sussex County. (Burbutis). MASSACHUSETTS - Ranged 8-15 per 100 sweeps in alfalfa at New Marlboro, Berkshire County, April 27. (Shaw).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increasing on alfalfa in Graham County but continues very light in Yuma, Maricopa and Pinal County fields. (Ariz. Coop. Sur.). NEW MEXICO - Counts remain generally light throughout State; 15-25 per 25 sweeps in some fields in northern Lea County. (N.M. Coop. Rpt.). TEXAS - Very light populations in Brazos County alfalfa. (Randolph). OKLAHOMA - Generally light throughout State, with moderate counts (400 per 10 sweeps) present in Harmon County. Large percent in east central counties winged. Spring-seeded fields warrant close check as populations may buildup with harvest of older crop. (Okla. Coop. Sur.). KANSAS - Counts in alfalfa in southeastern district ranged 0-12 per sweep. Generally, species found only in extreme southern tier of counties. Counts 500 per sweep on south-facing roadside embankment in Montgomery County; only trace counts found on north-facing embankment across road. (Peters). ILLINOIS - Counts 8 per 100 sweeps in one field in Macoupin County and in one field in Adams County; none found elsewhere. (Ill. Ins. Rpt.). WISCONSIN - Fundatrices contain embryos; most individuals half grown. Ranged 20-30 per sweep in 2 observation fields at Brodhead. (Wis. Ins. Sur.). GEORGIA - Light infestations on alfalfa in northeast and northwest areas. (Johnson).

SWEETCLOVER APHID (Therioaphis riehmi) - WISCONSIN - Nymphs half grown in southern part of State. (Wis. Ins. Sur.).

APHIDS - ALABAMA - Extremely heavy on clovers and vetch over State; 50-75 per sweep in Autauga County. (Helms).

LEAFHOPPERS - MASSACHUSETTS - Several species ranged 2-5 per 100 sweeps in alfalfa in Berkshire County April 27. (Shaw). FLORIDA - Five adults and one nymph of Aceratagellia sanguinolenta per 50 sweeps of past-prime lupine at Gainsville, Alachua County; 3 adults per 100 sweeps in alfalfa in same area. (Mead). UTAH - A. sanguinolenta and Dikraneura carneola common in Juab County wheatfield margins. A. sanguinolenta moderately numerous in alfalfa in Milford-Beaver area of Beaver County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - FLORIDA - Five adults per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). ALABAMA - Heavy, 1-3 per sweep, on clover and vetch in south, central and northern areas. (McQueen). ARKANSAS - Ranged 100-150 per 100 sweeps on small grains in Pulaski County; 70 percent nymphs. (Ark. Ins. Sur.). OKLAHOMA - Nymphs and adults light on alfalfa in east central and southwest areas; 3-10 per 10 sweeps. (Okla. Coop. Sur.). MISSOURI - Adults and nymphs light on alfalfa in southeast; 50-100 per 100 sweeps. (Houser, Thomas, Wood). ILLINOIS - Adults varied 2-150 (averaged about 25) per 100 sweeps in clover and alfalfa in west, west-southwest, southwest and southeast districts. (Ill. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing slowly in alfalfa; 30-40 per 100 sweeps in Graham County, 35-40 in Maricopa and Pinal Counties and 25-35 in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa throughout State. Some counts averaged 9-10 per 25 sweeps in Chaves and Lea Counties, with higher counts of 8-15 per 25 sweeps reported in Eddy County. Counts 5-8 per

25 sweeps in Dona Ana County. (N.M. Coop. Rpt.). COLORADO - Ranged 5-10 per 100 sweeps on 3-4 inch alfalfa in Mesa County. (Bulla). UTAH - Largely Lygus elisus, active in Davis and Salt Lake County fields and weedy roadsides. (Knowlton, Apr. 28). Active and fairly common in weedy areas, fewer in alfalfa and wheat, of Juab, Millard, Beaver and Washington Counties; some nymphs on mustards in area of Washington County. (Knowlton, May 1).

RAPID PLANT BUG (Adelphocoris rapidus) - MISSOURI - First nymphs of season found on alfalfa in southeast; averaged 50 per 100 sweeps. (Houser, Thomas, Wood). ILLINOIS - Nymphs varied 0-100 per 100 sweeps in clover and alfalfa in west, west-southwest, southwest and southeast districts. (Ill. Ins. Rpt.). FLORIDA - Four adults per 100 sweeps in alfalfa in Gainesville, Alachua County. (Mead).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Nymphs (first of season) varied 0-40 per 100 sweeps in southeast and southwest districts on alfalfa. (Ill. Ins. Rpt.).

FALSE CHINCH BUGS (Nysius spp.) - UTAH - Adults common in Beaver, Juab, Millard, Iron and Washington County alfalfa; largely N. ericae. (Knowlton).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Nymphs found in Montgomery, Greene, Fayette, Clark, Madison and Miami Counties, southeast area; 4-5 per red clover plant in few northern Greene County fields. Forming spittle masses at some places. Several wild hosts noted. Egg hatch observed in Wayne County, northeast area, on April 24. (Miller, Lyon). WISCONSIN - Eggs hatched in more advanced areas of State. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Four adults and 2 nymphs per 100 sweeps of second-growth alfalfa at Gainesville, Alachua County. (Mead). ARIZONA - Populations remain light although some increases noted in Graham, Maricopa and Yuma Counties on alfalfa. (Ariz. Coop. Sur.). UTAH - This species and Stictocephala bubalus infesting alfalfa at St. George, Washington County. (Knowlton).

ALFALFA CATERPILLAR (Colias eurytheme) - ALABAMA - Extremely heavy locally south of Ashland, Clay County, on April 22; 15-25 pupae per square foot. Very few adults emerged in area. Heavy adult emergence expected April 28-May 5. Adults and larvae appearing on black medic and white clover in Marshall County and considerable numbers of adults and larvae noted in some alfalfa in Tennessee Valley. (Kendrick et al.). FLORIDA - Nine larvae per 100 sweeps of second-growth alfalfa at Gainesville, Alachua County. (Mead). IDAHO - Very few larvae found in several fields checked in Canyon County. (Bechtolt).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - ILLINOIS - Adults 0-10 per 100 sweeps, mainly in alfalfa in southeast and southwest districts. (Ill. Ins. Rpt.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - First activity of season noted in alfalfa; small numbers present in Wagoner, Muskogee, Sequoyah and Le Flore Counties. (Okla. Coop. Sur.). FLORIDA - Lightly infesting sweet corn at Zellwood, Orange County. (Musgrove, Van Pelt).

FORAGE LOOPER (Caenurgina erechtea) - ILLINOIS - Larvae averaged 7 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Continues to feed on vetch in northern area. (Turney). OKLAHOMA - Light, 1-5 per 10 sweeps, on alfalfa in east central area. (Okla. Coop. Sur.). KANSAS - Occasional larva on alfalfa in southeast. (Peters). MISSOURI - Larvae on alfalfa in southeast; 0-10 per 100 sweeps. (Houser, Thomas, Wood).

VARIEGATED CUTWORM (Peridroma saucia) - TEXAS - Many reports received over large portion of State of this pest attacking vetch and small grains in light to heavy numbers. Larvae about 4-5 per square foot in northern area vetch which has fallen (Turney) and approximately 4-8 per square foot in Brazos County vetch (Randolph). ILLINOIS - Small, newly hatched larvae varied 0-10 (averaged 5.2) per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - Infesting alfalfa in Polk County; 3 per sweep. (Johnson).

THRIPS - NEW MEXICO - Infestations vary greatly on alfalfa over State. Generally light to moderate in Dona Ana, Sierra and Chaves Counties; heavier populations in Eddy County. (N.M. Coop. Rpt.). ARIZONA - Frankliniella occidentalis infestations medium to heavy on alfalfa in Graham and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - F. occidentalis and Rhipidothrips gratiosus heavy in mixed mustard and barley plantings in Orosi, Tulare County. (Cal. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Overall numbers of adults continue below 1963 levels in heavy infestation area near Galien, Berrien County. Heavily infested fields, 50 or more adults per 100 sweeps, more scattered than in 1963. Adults generally concentrated in field margins; feeding injury and eggs evident on grasses. Little movement into wheat occurred to May 1. No larvae observed, but expected soon. Spray operations of State-Federal suppression program expected to start during week of May 4-8. (Ruppel). OHIO - Federal-State treatment program conducted in 4-square-mile area in northern Allen County, northwest area. (Porter).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OKLAHOMA - Occasional specimens noted on corn in east central and southeast areas. (Okla. Coop. Sur.).

WIREWORMS - GEORGIA - These pests in conjunction with white grubs heavily infesting 40-acre field of corn in Sumter County. (Garner).

A CORNSTALK WEEVIL (Hyperodes humilis) - FLORIDA - Lightly infesting sweet corn stems near soil level at Zellwood, Orange County. (Musgrove, Van Pelt).

MAIZE BILLBUG (Sphenophorus maidis) - ALABAMA - Destroyed 40-acre cornfield and severely damaged 30-acre younger field in Houston County. (McQueen).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Larvae severely infesting grass in a home lawn at Woodbridge, Prince William County. (Tarpley, Trenary; Apr. 24).

A SCARAB (Anomala sp.) - TEXAS - Light to moderate, localized populations reported damaging sweet corn in Hidalgo County. (Texas Coop. Rpt.; Page, Espensen).

SOUTHERN MASKED CHAFER (Cyclocephala immaculata) - IOWA - Overwintered larvae reported in lawns at Des Moines. (Iowa Ins. Inf., Apr. 28).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintered borers averaged 50 percent in Kent County on April 27. (Burbutis). SOUTH DAKOTA - Average percent mortality of larvae 37.5 in Brookings, Lake and McCook Counties, east central area. (Hintz). ARKANSAS - More than 50 percent of overwintered larvae pupated in northwest area. (Ark. Ins. Sur.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - ALABAMA - Larvae ready to pupate near Boaz, Marshall County; 5-10 percent of old stalks with larvae. (McQueen).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Moderate to heavy populations reported on small grains in Denton, Collin, Grayson, Kaufman and Navarro Counties. (Turney). Counts 1-4 per square foot reported from oats in Brazos County. (Randolph). ARKANSAS - Surveys in small grain fields in Craighead and Pulaski

Counties negative for this species. (Ark. Ins. Sur.). KANSAS - First and second-stage larvae seen in few wheat fields in southeast. (Peters). ILLINOIS - Newly hatched larvae observed in grass in southern area. (Ill. Ins. Rpt.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Causing very little damage in fields examined this spring in Box Elder, Weber, Salt Lake, Utah, Juab, Millard and Beaver Counties. (Knowlton). COLORADO - Larvae of this species and Agrotis orthogonia 3-8 per linear foot on wheat in Kiowa and Prowers Counties; early and late stages causing injury. Controls underway. (Ext. Ser., Whitmore).

FALL ARMYWORM (Laphygma frugiperda) - ALABAMA - Larvae one per stalk on garden corn locally in Houston County; severe damage expected. (McQueen).

SOD WEBWORMS (Crambus spp.) - OREGON - Adults abundant and flying about lawns in Marion County. (Larson). CALIFORNIA - C. bonifatellus populations medium in lawns in Quincy, Plumas County. (Cal. Coop. Rpt.). WASHINGTON - C. bonifatellus damaging several lawn areas in Pullman. Det. by R. F. Harwood. (Brannon).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Averaged 100 per foot of row in Cowley County wheat. (Peters). NEW MEXICO - Light to moderate in wheat in Curry County; some damage becoming apparent. Damage apparent in some alfalfa in Chaves and northern Dona Ana Counties. (N.M. Coop. Rpt.). UTAH - Small populations on fall wheat on Levan Ridge, Juab County, and west of West Jordan, Salt Lake County. (Knowlton). ARIZONA - Found infesting Bermuda grass in Gila Valley, Yuma County; first report of mite infesting Bermuda grass in this area. (Ariz. Coop. Sur.).

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Heavy infestation in timothy in Smith Valley, Lyon County. This early, heavy infestation similar to that encountered in 1963. (Batchelder).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy, local populations present on Jackson County grain sorghum. (Wilson). Populations rapidly increasing on grain sorghum in Brazos County. Numerous parasites and predators noted. (Randolph). Heavy on small grains, particularly barley, in Denton County. (Turney). OKLAHOMA - Spotted builup occurring on barley in Muskogee County, east central area. (Okla. Coop. Sur.). ARIZONA - Ranged medium to heavy on barley in Graham County; 20-40 per leaf blade. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Generally light on small grains in east central and north central areas; some feeding occurring in heads but no damage expected. (Okla. Coop. Sur.). KANSAS - Counts ranged from a trace to 10 per foot of row on barley, wheat and oats in southeast. (Peters). MISSOURI - Populations declining in southeast; 0-20 per 100 sweeps on wheat. Wheat heading out. (Houser, Thomas, Wood). WISCONSIN - Populations remain very low in rye; nymphs present. (Wis. Ins. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Infestations in small grains remain about same as previous week; some damage apparent in De Baca, Curry and Roosevelt Counties. (N.M. Coop. Rpt.). KANSAS - Counts in wheat, barley and oats in southeast ranged 0-15 per foot of row. (Peters).

CHINCH BUG (Blissus leucopterus) - TEXAS - Numerous adults reported infesting Brazos County grain sorghum. (Randolph).

GRASS BUGS - UTAH - Nymphs causing moderate discoloration to planted intermediate wheatgrass in canyons from Kanab to Alton in Kane County. (Knowlton, Hatch). Nymphs numerous on grass at Kanarraville, Iron County. (Knowlton).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Collected from wheat and oats in Pulaski County; 25-30 per 100 sweeps. (Ark. Ins. Sur.). FLORIDA - Counts per 100 sweeps of mature rye at Gainesville, Alachua County, 5 adults and 2 nymphs. (Mead).

A LEAFHOPPER (Deltocephalus fuscinervosus) - CALIFORNIA - Adult populations medium on barley plantings in Woodlake, Tulare County. (Cal. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Ranged from 2 per 100 sweeps to 3 per 50 sweeps on rye in Hancock area, Waushara County; 1 per 100 sweeps in New London area, Outagamie County; and 1 per 50 sweeps in Rock County. (Wis. Ins. Sur.). SOUTH DAKOTA - Averaged 1 per linear foot of row in winter wheat in Jackson County. (Hintz). CALIFORNIA - Medium on oat plantings in Visalia and Woodlake, Tulare County. (Cal. Coop. Rpt.).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - Active in Beaver, Millard, Iron and Washington County fields and on rangeland. (Knowlton).

GRASSHOPPERS - WYOMING - Hatching of several species beginning in several areas of Washakie County. (Thornley, Marks). At Glendo, Platte County, Psoloessa delicatula mainly fifth instar with few adults present. Arphia conspersa in adult stage. Summer species yet unhatched. Season obviously several weeks retarded. At Wheatland, Platte County, few Melanoplus confusus in first instar. No other summer species hatched. Season also retarded in this area. (Pfadt). NORTH DAKOTA - Egg development survey conducted in Logan, Emmons, Mercer and Dunn Counties. In Emmons and Logan Counties, 25 percent of eggs clear, 35 percent coagulated, 25 percent eyespot and 15 percent segmented. Mercer and Dunn Counties showed 7 percent clear, 25 percent coagulated, 40 percent eyespot and 28 percent segmented. About 10 percent of egg pods infested with, or destroyed by, parasites and predators. Bee fly larvae found in 5 percent, ground beetle larvae in 3 percent and blister beetle larvae in 2 percent of pods. Species observed in Logan and Emmons Counties were Melanoplus bivittatus, M. femurrubrum and M. differentialis. M. bivittatus, M. packardii and M. femurrubrum observed in Dunn and Mercer Counties. (Brandvik). WISCONSIN - Eggs of M. confusus hatched in Marquette County on April 25; one week earlier than in 1963. (Wis. Ins. Sur.). MISSOURI - Nymphs, tentatively identified as M. sanguinipes, emerging in Pemiscot County, southeast. (Houser, Thomas, Wood). OKLAHOMA - Hatch of several species well underway in Ellis County, west central area. (Okla. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - INDIANA - No emergence of adults observed in Vincennes area, Knox County; pupation believed completed. (Cleveland, Apr. 28). WASHINGTON - In pupal stage April 8 at White Swan, Yakima County, on apples. (Butt).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First adult of season taken in trap in Vincennes area, Knox County, on April 27. (Cleveland).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WASHINGTON - Young larvae tying foliage of apple, peach and apricot at Wawawai, Whitman County. (Johansen).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Young larvae numerous on peach; fewer on apricot at Wawawai, Whitman County. Starting to penetrate tips of branches April 25. (Johansen).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Adult recovered in Niantic. (Savos, Apr. 29). NEW YORK - No flight observed as of April 25 in Monroe County. First adult that date in Niagara County. (N.Y. Wkly. Rpt.). INDIANA - First-generation eggs hatched in Vincennes area, Knox County. Protection at petal fall and first-cover periods advised. (Cleveland, Apr. 28). MICHIGAN - First flight of adults in Kent County observed April 28; no egg masses seen. (Shepler).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Hatching began week of April 19 in New Haven. Careful checking of blocks infested last year urged. (Savos).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - CONNECTICUT - Now hatched in most of State; tents quite noticeable in lower Fairfield County. Controls urged. (Savos, Apr. 29). SOUTH CAROLINA - Numerous throughout State. Apparently ready to pupate in Clemson area. Reported heavier than usual in Pee Dee area. (Nettles et al., Apr. 21).

A GELECHIID MOTH (Symmoca signatella) - CALIFORNIA - Medium in twigs, bark and trunk of apricot trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MARYLAND - Second instars infesting peaches in Montgomery County. (U. Md., Ent. Dept.). INDIANA - First males of season in Vincennes, Knox County, emerged in greenhouse on April 24; females emerged April 28. Believed slightly ahead of field emergence owing to partial protection to peach wood in greenhouse. (Cleveland).

BORERS - IDAHO - Infestation of 10 percent of 140-tree block of young prunes near Parma caused by Sanninoidea exitiosa or Synanthedon pictipes. All injury in main crotches of trees; larvae nearly full grown. (Scott).

PLUM CURCULIO (Conotrachelus nenuphar) - DELAWARE - First adults of season present in apple trees in area of Sussex County on April 24. (MacCreary). OHIO - First adults of season active April 28 on cherries in Cincinnati, Hamilton County. (Rings).

ROSY APPLE APHID (Anuraphis rosea) - NEW YORK - First observed April 23 in Ulster County; numbers appear very scarce this year. Hatch observed April 21 in Columbia County. No hatch observed to April 25 in Monroe County. First found April 22 in Niagara County. (N.Y. Wkly. Rpt.). CONNECTICUT - One of more important insects in orchards; increasing at Storrs. (Savos, Apr. 29). MARYLAND - Colonies building up and causing some leaf curl on untreated apples in Hancock area, Washington County. (U. Md., Ent. Dept.).

APPLE APHID (Aphis pomi) - NEW YORK - Beginning to feed on some apple trees in Nassau County. (N.Y. Wkly. Rpt., Apr. 27). CONNECTICUT - One of the more important insects in orchards. (Savos, Apr. 29).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CONNECTICUT - One of the most abundant insects in orchards. Decreasing in numbers. (Savos, Apr. 29).

GREEN PEACH APHID (Myzus persicae) - UTAH - Curling leaves of peach trees in Santa Clara-St. George and Hurrican-Toquerville areas of Washington County. (Knowlton). COLORADO - No significant buildup on Mesa County peaches. (Bulla).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Light to medium on apple trees in Bernalillo County. (N.M. Coop. Rpt.).

APHIDS - ALABAMA - Building up on apples, peaches and plums in Lee and Chambers Counties. (Barwood).

TARNISHED PLANT BUG (Lygus lineolaris) - OHIO - Adults observed quite frequently on apple, pear and peach trees in neglected home orchards in southwestern area. Bugs congregate in numbers on blossoms and buds. (Lyon).

LYGUS BUGS (Lygus spp.) - COLORADO - Averaged 60 per 100 sweeps in peach orchards with tansymustard and other weeds; 0-5 per 100 sweeps in orchards under clean cultivation in Mesa County. (Bulla).

SAN JOSE SCALE (Aspidiotus perniciosus) - COLORADO - Dormant and delayed-dormant sprays applied near Palisade, Mesa County, on pears. (Bulla). NEW MEXICO - Light on apple trees in Verlarde, Rio Arriba County. (N.M. Coop. Rpt.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy locally on nectarine tree in Garden Grove, Orange County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Eggs abundant; earliest eggs began hatching April 30 in western area; general hatching expected following week. (Wave). CONNECTICUT - Eggs found easily but no hatch reported; additional eggs laid at Storrs. (Savos, Apr. 29). NEW YORK - Eggs easily found in pear orchards checked in Wayne and Monroe Counties. (N.Y. Wkly. Rpt., Apr. 27). CALIFORNIA - Adults on pear trees in Visalia, Tulare County; this is a new county record. (Cal. Coop. Rpt.).

THRIPS - UTAH - Three species moderate in blossoms of apple, cherry and plum in Toquerville-Hurricane area of Washington County. (Knowlton).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Hatching began in New Haven week of April 19. Controls urged. (Savos). NEW YORK - Eggs not so numerous on Wayne County apples as in 1963; more eggs per location noted. (N.Y. Wkly. Rpt., Apr. 27). MARYLAND - Heavy on unsprayed apples at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - Several commercial orchards examined in southwestern area indicate moderate to heavy populations last autumn; eggs found most abundantly on Delicious apple trees. (Lyon). INDIANA - Overwintering eggs hatched April 16 in Vincennes area, Knox County; eggs of current generation not found. (Cleveland). MICHIGAN - Eggs unhatched in southwestern areas on April 23. (Howitt, Carpenter). WASHINGTON - Overwintering eggs now hatching on fruit trees at Zillah, Yakima County. (Capizzi, Apr. 27).

SPIDER MITES - MARYLAND - Tetranychus sp. buildup beginning on unsprayed apples at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - Tetranychus telarius active on ground cover and low water sprouts but not on main parts of trees in Vincennes area of Knox County. (Cleveland, Apr. 28). MICHIGAN - Egg hatch of Bryobia rubrioculus apparently heavy on unsprayed apple trees in Ingham County April 29. (Howitt, Carpenter). WASHINGTON - B. rubrioculus larvae and protonymphs low in numbers on apple and peach at Wawawai, Whitman County. (Johansen).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - MISSOURI - Damaging 5-55 percent of pecan buds in Chariton County. (Houser, Thomas, Wood).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Some evidence of feeding in new shoots in Bixby area, Tulsa County. (Okla. Coop. Sur.). TEXAS - Heavy in San Saba County. (Huckabee).

BLACK-MARGINED APHID (Monellia costalis) - OKLAHOMA - Causing honeydew secretions on leaves of pecan trees in Bixby area, Tulsa County. (Okla. Coop. Sur.).

WALNUT APHID (Chromaphis juglandicola) - UTAH - Moderate on walnut foliage in La Verkin-Toquerville area of Washington County. (Knowlton).

A FILBERT APHID (Myzocallis coryli) - OREGON - Populations in filbert orchards of Willamette Valley remain low due to cold, wet weather. (Larson).

A SOFT SCALE (Lecanium pruinosum) - CALIFORNIA - Probably this species, heavy on walnut trees in Merced, Merced County. (Cal. Coop. Rpt.).

SAWFLIES - OKLAHOMA - Several species feeding on pecans in Tulsa and Marshall Counties. (Okla. Coop. Sur.). TEXAS - Numerous reports of several species attacking pecan foliage in wide area of State. (Meisch).

COWPEA APHID (Aphis craccivora) - ARIZONA - Heavy, localized infestations on citrus in Yuma Mesa area, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Moderate in Yuma County and heavy in Maricopa County. Many controls applied in Maricopa County; controls just beginning in Yuma County. (Ariz. Coop. Sur.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Few, light, scattered infestations found in Yuma County. (Ariz. Coop. Sur.).

GRASSHOPPERS (Trimerotropis spp.) - ARIZONA - Damaging grapes in area near Phoenix, Maricopa County. (Ariz. Coop. Sur.).

PINEAPPLE SCALE (Diaspis bromeliae) - CALIFORNIA - Heavy on nursery pineapple plant in Yuba City, Sutter County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WASHINGTON - Adults leaving soil after overwintering; first activity noted for season at College Place, Walla Walla County. (Landis, Apr. 27). Continue leaving soil but dying from lack of proper food host plants. Only 12 percent adults found above ground in old potato field survived. Normal host, Solanum nigrum, failed to germinate this spring. No other Solanum sp. present. Also true in Columbia Basin (Grant and Adams Counties) and Walla Walla, Walla Walla County. (Landis). TEXAS - Larvae and adults damaging potatoes in Brazos County and numbers heavy on purple nightshade. (Randolph). Light, widespread infestation on purple nightshade in Guadalupe County. (Tex. Coop. Rpt., Massey). ALABAMA - Larvae and adults noted on potatoes in Henry and Houston Counties. (McQueen). DELAWARE - First adults of season abundant on new tomato sets on truck farm in southeastern Sussex County. (Burbutis).

POTATO APHID (Macrosiphum euphorbiae) - SOUTH CAROLINA - First report of injury to tomatoes of season. (Gladden, Apr. 27).

CUCUMBER BEETLES (Diabrotica spp.) - ARIZONA - Light in few cantaloup fields of Yuma County. (Ariz. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Caused considerable damage to cabbage. (McQueen). OHIO - Adult activity increased substantially. Groups of 2-3 adults observed flying throughout many gardens and forage fields. (Lyon). MARYLAND - Butterflies on wing conspicuous at several locations in Prince Georges County. (U. Md., Ent. Dept.).

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Heavy in few home gardens in Henry and Houston Counties; heavy damage to turnips and cabbages by larvae. (McQueen).

CABBAGE WEBWORM (Hellula rogatalis) - ALABAMA - Noticeable infestations occurring. (McQueen).

PACIFIC COAST WIREWORM (Limonius canus) - WASHINGTON - First adult activity of males this season at Crescent Bar, Grant County. Swept from tansymustard (Descurania pinnata). (Landis).

FLEA BEETLES - UTAH - Moderate on mustards at Leeds, Washington County. (Knowlton).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Light egg laying noted on old collards. (McQueen).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Heavy on radish plants in Merced, Merced County. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Overwintered adults extremely heavy on beans in Houston and Henry Counties; 18 per yard. (McQueen).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Noted on beans. (McQueen).

A WEEVIL (Rhinoncus pyrrhopus) - DELAWARE - Adults present on peas in field in Kent County. (Burbutis).

PEA APHID (Acyrthosiphon pisum) - DELAWARE - Present on peas throughout State but counts remain low, 1-10 per 10 sweeps. (Burbutis). IDAHO - Very few found in all fields checked in Canyon County. (Bechtolt).

BEET LEAFHOPPER (Circulifer tenellus) - WYOMING - Survey conducted in Washakie and Hot Springs Counties to determine range of overwintering population. Adults ranged 0-4 per square foot; averaged 0.25 per square-foot sample of host area. Largest populations found on kochia and annual mustards on ditch banks, fence rows and other waste areas. Efforts underway for each grower to apply controls on own property to prevent movement to sugar beet fields. (Thornley, Patch, Lowry, Marks). UTAH - Averaged 5 per 15 sweeps on blossoming mustards at Leeds, Washington County; and one per sweep in sugar beets for seed in St. George area of this county. Ranged 3-7 per 10 sweeps in other fields in latter. Some also noted wherever Russian-thistle and mustards present in Washington County. (Kowlton).

ONION THRIPS (Thrips tabaci) - NEVADA - Ranged 1-2 per garlic plant in Reno, Washoe County. (Bechtel, Lauderdale). UTAH - Caused light damage to some onions in Washington County. (Knowlton).

THRIPS - NEW MEXICO - Heavy, 12-17 per plant, on 3 onion fields in Dona Ana County; however, other fields around Las Cruces area showed no damage. (N.M. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - IDAHO - First fly of season noted near Parma on April 28. (Scott).

WHEAT CURL MITE (Aceria tulipae) - IDAHO - Infestation on experimental leek at Parma probably this species. Plants progressively turn yellow from tips of leaves and later die. (Scott).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Trace, spotted infestations on garlic in Reno, Washoe County. (Bechtel, Lauderdale).

ASPARAGUS BEETLE (Crioceris asparagi) - MISSOURI - Adults breeding and laying eggs on asparagus in Boone County. (Wingo).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Generally light to May 1 on strawberries in Wicomico County. (U. Md., Ent. Dept.).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - DELAWARE - Present on strawberries in areas of Sussex County. (MacCreary).

SPIDER MITES - NEW YORK - Average 2-3 per leaf on several strawberry varieties in Nassau County. (N.Y. Wkly. Rpt., Apr. 27). TEXAS - Locally heavy, damaging strawberries in Jefferson County. (Smith). MARYLAND - Tetranychus sp. heavy in field at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

REDBERRY MITE (Aceria essigi) - FLORIDA - Infesting 1-acre blackberry patch at Grand Island, Lake County. Berries reported drying in large numbers, particularly at ripening stage. This eriophyid probably ruined this patch for the year's crop. (Skinner, Apr. 16). This is a new State record. (Fla. Coop. Sur.).

CUTWORMS - MARYLAND - Caused light to moderate damage to older leaves and fruit of strawberries at 2 locations near Salisbury, Wicomico County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Damage to tomatoes extremely heavy; 32 of 45 tomato plants damaged in 2 nights in Clemson area. (Nettles et al., Apr. 27). GEORGIA - Moderate on tomatoes in Tifton area. (French).

WIREWORMS - WASHINGTON - Larvae of Limonius sp. infested planted potato seed pieces. About 4 percent infested at Royal City, Grant County. (Landis). MICHIGAN - Larvae of undetermined species numerous in muck field planted to onions near Stockbridge, Ingham County. (Guyer).

APHIDS - ALABAMA - Quite heavy on sweetpotatoes in Baldwin County. (Oates). WASHINGTON - Alate and apterous forms of Acyrthosiphon spp. and Myzus spp. migrating to and reproducing on volunteer sugar beets. Winter favorable for aphid survival in Walla Walla County. (Landis, Apr. 27).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults active but few in number. Small nymphs on Lepidium perfoliatum. First report of infestation on spinach; no injury so far on sugar beet seedlings at College Place, Walla Walla County. (Landis, Apr. 27). IDAHO - Very few adults present in all fields checked in Canyon County. (Bechtolt).

LEAFHOPPERS - ALABAMA - Quite heavy on sweetpotatoes in Baldwin County. (Oates). IDAHO - Nearly all fields checked in Canyon County showed very few adults present. (Bechtolt).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Apparent in some strawberry plantings in southwestern area. (Howitt, Carpenter). ARIZONA - Heavy on cantaloup in Yuma County when fields adjacent to alfalfa fields. (Ariz. Coop. Sur.).

TOBACCO INSECTS

LEAF BEETLES - SOUTH CAROLINA - Brought into fields from beds in Horry County. (Liebenrood).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Adults averaged 19 per acre on two to four-leaf cotton on 4 farms in Henry County. (Hartzog et al.). TEXAS - One weevil found in McLennan-Fall County area in cotton. No weevils collected in flight screens. Activity began in cages on April 6. (Cowan et al.).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Moderate numbers causing some damage to seedling cotton in Maricopa County. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - In 40 untreated cotton fields in McLennan-Falls County area, eggs found in 14 fields with maximum of 4.3 per 100 terminals and 2 larvae found in one field. In treated fields in area, eggs found in 9 of 15 inspected with a maximum of 5.0 per 100 terminals. Six larvae found in 3 fields. All larvae collected large enough to identify have been determined as Heliothis zea. (Cowan et al.).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Lightly infesting wild cotton at Ft. Myers, Lee County. (Robnett, Apr. 22).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Newly hatched larvae found in area near Buckeye; egg masses numerous but no economic damage observed. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - ARIZONA - Light on cotton; 4-6 per 100 plants in Graham County and 6-8 per 100 plants in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). TEXAS - Light to heavy infestations reported from coastal bend, north central and south central areas. (Texas Coop. Rpt.). Infestations general but light in most cotton fields in McLennan-Falls County area, with good buildup of predators and parasites. Counts light in 28, medium in 8 and heavy in 4 untreated fields, compared with light in 10, medium in 1 and none in 4 treated fields. (Cowan et al.). ALABAMA - Very light to very heavy on cotton examined; lady beetle larvae feeding. (McQueen).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Migration into cotton fields occurring in Rio Grande Valley. (Lohmberg). Rather heavy populations on croton, evening primrose and verbena in McLennan-Falls County area. Maximum counts in untreated cotton 4.0 per 100 linear feet of row; 3.0 per 100 linear feet of row in treated fields. (Cowan et al.).

THRIPS - ALABAMA - Very light in all cotton examined; concentrated in borders near pastures and fences. (McQueen). TEXAS - Light to heavy infestations occurring in north central, south central and upper coastal regions of State. (Texas Coop. Rpt.). Infestations in untreated cotton not found in 16 fields, light in 32 and medium in 2. In 15 treated fields, infestations light in 2 and none in 13. (Cowan et al.). ARIZONA - Frankliniella spp. populations light on fields planted with untreated cotton seed in Graham County; averaged 4-6 per 100 plants. Heavy infestations occurring in some areas of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Scattered, light infestations in areas of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

(Weather continued from page 428.)

Mountains in the south and to the western Great Plains in the north. Cooling to below normal levels affected most of the areas from central Texas eastward and from the Appalachians to the Atlantic coast.

At the beginning of the week, a deep low was centered over Nebraska. Rain fell from the Pacific Northwest to Florida and from central Texas to the Ohio River Valley. A few tornadoes or severe wind storms occurred over Michigan, Indiana, Georgia and Florida. A local snow storm affected the Black Hills, while strong winds raised the dust in Colorado, Nebraska and Kansas. The winds reached 82 m.p.h. at Broken Bow, Nebraska, on Monday. By Thursday, the storm center had moved to the Great Lakes region where it continued to cause cloudy, rainy weather. The weather cleared in the northeast over the weekend but a new and vigorous storm developed in the northern Rocky Mountains on Saturday causing snow and cold rains over several States. Helena, Montana, received a near record May snowfall of 6 inches or more. At the end of the week, one storm centered in eastern Montana continued to bring rain over the northern Rocky Mountains and northern Great Plains. Another storm was centered over Kansas. A third storm off the South Carolina coast was intensifying but moving out into the Atlantic Ocean. (Summary supplied by U.S. Weather Bureau.)

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Survey made on 30-40 acres of forest land on Moscow Mountain in Latah County to determine potential infestation for 1964. Total of 71 cocoons collected from lower tree branches during three hour search. There appears to be a correlation between number of current egg masses and cocoons compared with number of old egg masses and amount of defoliation that will occur during 1964. Collected cocoons examined for egg masses, success of adult emergence and evidence of parasites or disease. Of 71 cocoons examined, 3 were old, 42 were new. Moths had emerged successfully from 63 and remainder contained parasitized or diseased pupae. Populations of this tussock moth appeared confined to ridge tops and releases indicate defoliation will be greater during 1964 than in 1963. Area will be surveyed again during summer in order to keep abreast of progress of infestation. (Tunnock, Schenk, Keefe, Deters).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Larvae first noted April 28 in Bayfield County; 50 percent feeding April 30 despite cool temperature. This phenomenon occurred April 14 last year. (Wis. Ins. Sur.).

PITCH-PINE TIP MOTH (Rhyacionia rigidana) - GEORGIA - First-stage larvae numerous on tips of pine in Athens area, Clarke County. (Yates).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - MICHIGAN - Larvae began entering bark at Paw Paw, Van Buren County, April 22. Stem-drenching sprays not already applied probably no longer effective. (Butcher).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Light to heavy in planted loblolly pines in several areas of Pittsylvania County. (Va. For. Pest Surv. Rpt., March Summ.).

PINE WEBWORM (Tetralopha robustella) - VIRGINIA - Vast damage recorded in few loblolly pines in spot in Fluvanna County. (Va. For. Pest Surv. Rpt., March Summ.).

PALES WEEVIL (Hylobius pales) - NEW YORK - This species and Pissodes approximatus becoming important pests as a result of selective cutting practices in plantations. (N. Y. Wkly. Rpt., Apr. 27). VIRGINIA - Damaged several pine seedlings in single area of Pittsylvania County. (Va. For. Pest Surv. Rpt., March Summ.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Results of evaluation survey by U.S. Forest Service showed increase in activity. Survey conducted during late March over 2,000,000-acre area under surveillance. Brood trees per thousand acres slightly over 2, compared with only 0.3 in January. Spots located during March, primarily scattered single trees in which beetles concentrated in those injured by fire or lightning. Largest spot controlled contained 20 active trees. Fresh attacks on green trees observed during March; thus, suspicious areas, such as those where most recent infestations occurred, should be checked by landowners for beetle activity. (Texas For. Pest Comm.; Williamson). VIRGINIA - Up to 4 spots of kill per county ranging 0.2-4 acres noted in Powhatan, Chesterfield, Hanover, New Kent and King William Counties; new spots of 3-20 loblolly and shortleaf pine trees in size noted in Nottoway County. Species responsible for kill of 5-7 trees in stand of Virginia pine in Franklin County. (Va. For. Pest Surv. Rpt., March Summ.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - One small infestation reported from San Jacinto County; controls applied. Infestations of I. avulsus, I. grandicollis and I. calligraphus remained at low levels during March. (Texas For. Pest Comm., Williamson). VIRGINIA - Killed shortleaf and Virginia pines in spot in Louisa County and in 2 spots of one acre each in Fluvanna County. Killed single shortleaf pine in Campbell County and killing shortleaf, Virginia and loblolly pines in spots of 1-25 trees in size in Halifax, Lunenburg and Appomattox Counties. (Va. For. Pest Surv. Rpt., March Summ.).

PINE BARK APHID (Pineus strobi) - NEW YORK - Active and feeding on pines in Nassau County. (N.Y. Wkly. Rpt., Apr. 27). WISCONSIN - Eggs not hatched as of April 29. Had hatched at same site by April 14 last season. (Wis. Ins. Sur.).

SPRUCE APHID (Aphis abietina) - WASHINGTON - Probably this species, caused severe damage to spruce in Vancouver, Clark County; needles, twigs and small branches killed. (Shanks).

WHITE-PINE APHID (Cinara strobi) - OHIO - Light to moderate numbers of old-egg remnants noted on several white pines near Xemia, Greene County, southwest. (Lyon).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW YORK - Severe on Scotch pines at Martville, Cayuga County, April 25. (N.Y. Wkly. Rpt.). VIRGINIA - Light on some twig samples from 15 white pines in Augusta County. (Va. For. Pest Surv. Rpt., March Summ.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Groups of 7-8 larvae per needle noted on red pines near Wooster, Wayne County, northeast. Larvae noted on same host in Cincinnati, Hamilton County, southwest. (Neiswander, Rings). ILLINOIS - Eggs appeared numerous April 27 on red pines planting in Fulton County; planting not sprayed with virus solution in 1963. Hatching just beginning. In 1963, all eggs of this species in this same area had hatched by April 4. (Rennels). MICHIGAN - Newly emerged larvae numerous in Scotch pine plantation in Ingham County April 28. (Wells).

PINE SAWFLIES - NEW YORK - Adults of unspecified species noted; may be forerunner of larval damage that may occur this season. (N.Y. Wkly. Rpt., Apr. 27). VIRGINIA - Neodiprion pratti pratti active on shortleaf pine throughout Brunswick County by April 6. (Va. For. Pest Surv. Rpt., March Summ.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - DELAWARE - First adults of season noted feeding on elms in southeast Sussex County. (Burbutis). VIRGINIA - Adults common at locations in Blacksburg, Montgomery County, and in Lexington, Rockbridge County. (Rowell, Tarpley). GEORGIA - Adult emergence heavy from attic in Athens, Clarke County. (Lund). ALABAMA - Where heavy populations continued to defoliate elms in Chilton County during 1963, trees so weakened they failed to leaf out and were removed. This happening along many streets in central and northern parts of State where homeowners blame death of trees on other insects that follow damage by this leaf beetle. (Helms et al.). OKLAHOMA - Egg deposition and adult feeding becoming general throughout State. Hatching occurring in Marshall County, south central. (Okla. Coop. Sur.). KANSAS - Occasional adults noted on bark, flying around elms and on car radiators in Russell County, central area. (Martinez). Adults active in southeast area; no larvae noted. (Peters). OHIO - Adults abundant and feeding on new elm leaves at Columbus, Franklin County, central area. (Davidson, Burley).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - KANSAS - Adults emerging from overwintering brood in Riley County, northeast. (Thompson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Becoming increasingly heavy on cherry in Chilton, Shelby and other northwestern counties. (Helms et al). MISSOURI - Late-stage larvae present on wild plum, wild cherry and hawthorn in southeast area. (Houser, Thomas, Wood). KANSAS - Webs noted April 24 on choke cherry in Pottawatomie County, northeast. (Kauffield). WISCONSIN - Webs becoming noticeable in Rock County; larvae mostly second stage. (Wis. Ins. Sur.). CONNECTICUT - Egg masses hatched over most of State; tents conspicuous in lower Fairfield County. (Savos).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Larvae damaging foliage of some cottonwood trees at Leeds and in Hurricane-La Verkin-Toquerville area of Washington County and at Orderville, Kane County. (Knowlton).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Initial egg hatch occurred April 28 in Middlesex County. (Johnson, Haines).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Numerous on small American elm in Riley County, northeast. (Mills). Defoliating elms in southeastern area. (Peters). NORTH DAKOTA - Emergence of males and females continues light in southeast. (N.D. Ins. Sur.).

FALL CANKERWORM (Alsophila pometaria) - WISCONSIN - Eggs sparce in area of Columbia County where infestation heavy in 1963. (Wis. Ins. Sur.).

CANKERWORMS - NEW YORK - Sufficient numbers on egg clusters noted throughout Suffolk County to warrant early spraying. (N.Y. Wkly. Rpt., Apr. 27). DELAWARE - Young larvae very common on elms in southeast Sussex County. (Burbutis). IOWA - Observations of unspecified species at Oskaloosa, Knoxville and Indianola April 21 and at Emerson, Red Oak and Corning April 24 indicate extreme variability in number of moths trapped in tanglefoot. This will influence number of larvae which will feed on elm foliage. May be beginning of decline in cankerworm numbers. (Iowa Ins. Inf.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Larvae heavy on oak trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

GIANT BARK APHID (Longistigma caryae) - SOUTH CAROLINA - Numerous on sycamore in Aiken County; mostly winged forms. (Nettles et al., Apr. 24).

A BIRCH APHID (Euceraphis betulae) - CALIFORNIA - Medium on birch trees in Woodside, San Mateo County. (Cal. Coop. Rpt.).

A WOOLLY APHID (Eriosoma sp.) - DELAWARE - Very common on elms in several areas of Sussex County; causing rather severe leaf curl. (Burbutis).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - NEW MEXICO - Medium to heavy on willow and other shade trees in Santa Fe, Santa Fe County. (N.M. Coop. Rpt.). VIRGINIA - Heavy on lilac at a location in Lexington, Rockbridge County. Det. by M. Kosztarab. (Rowell, Strecker).

A PIT SCALE (Asterolecanium minus) - CALIFORNIA - Heavy on oaks in Galt, Sacramento County. (Cal. Coop. Rpt.).

HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) - KANSAS - Counts of 40-50 eggs per hackberry leaf noted in Riley County April 24. (Thompson).

BIRCH LEAF MINER (Fenusa pusilla) - OREGON - Adults emerged week of April 22; large numbers evident on and about leaves of white birch nursery stock in Multnomah County. (Larson). NEW JERSEY - Adults active in central area. (Ins.-Dis. Newsltr.).

DUSKY BIRCH SAWFLY (Croesus latitarsus) - WISCONSIN - Adults observed April 29 in Dane County. (Wis. Ins. Sur.).

A GALL WASP (Callirhytis punctata) - DELAWARE - Severe infestation noted on large oak tree in Sussex County. Species apparently becoming very serious pest of oaks in State, as this only one of several damaging infestations noted last 2-3 years. (Burbutis).

DOGWOOD BORER (Thamnosphecia scitula) - VIRGINIA - Larvae severe in dogwood trees at a location in Bluefield, Tazewell County. (Tarpley, Sisk).

RHODODENDRON BORER (Ramosia rhododendri) - MARYLAND - Larvae killing rhododendron plants on a property in Baltimore. (U. Md., Ent. Dept.).

AZALEA LEAF MINER (Gracilaria azaleella) - OREGON - Damage to evergreen azaleas in Marion County noticeable. (Scott, Johnson).

JUNIPER WEBWORM (Dichomerus marginella) - VIRGINIA - Larvae severe in evergreen shrubbery in a Tazewell location, Tazewell County. (Tarpley, Sisk).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Infesting 30 acres of gladioli at Iona, Lee County, April 20. (Walsh, Shirah).

AILANTHUS WEBWORM (Atteva aurea) - WISCONSIN - First adults of season taken in blacklight trap at Madison April 27. (Wis. Ins. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARIZONA - Light to medium on apple and pyracantha in Safford area of Graham County. (Ariz. Coop. Sur.).

ROSE APHID (Macrosiphum rosae) - FLORIDA - Found on Rosa sp. at Gainesville, Alachua County, April 4, 1964. Six colonies found on one plant. Det. by A. N. Tissot. This is a new State record for this species. (Fla. Coop. Sur.; Tissot). ARIZONA - Heavy on rose bushes in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

PURPLE-SPOTTED LILY APHID (Macrosiphum lilii) - FLORIDA - Infesting Easter lily (Lilium longiflorum var. eximium) at Ocala, Marion County, April 14, 1964. Det. by A. N. Tissot. (Kuitert, Habeck). This is a new State record for this species. (Fla. Coop. Sur.).

AZALEA APHIDS - CALIFORNIA - In Sacramento County, Vesiculaphis caricis medium on azalea plants in Carmichael and Amphoropora azaleae medium on azaleas in Capitol Park, Sacramento. These are both new county records. (Cal. Coop. Rpt.).

APHIDS - DELAWARE - Macrosiphoniella sanborni common on chrysanthemums in an area of New Castle County. (Burbutis). FLORIDA - Toxoptera aurantii moderate on Jacaranda sp. at Tampa, Hillsborough County, April 23. (Fuller). OKLAHOMA - Several species continue active on ornamentals throughout State. (Okla. Coop. Sur.). UTAH - Three species (92 percent nymphs) infesting roses and 2 species infesting foliage of snowball bush at Washington, Washington County. (Knowlton). NEVADA - Unspecified species heavy on roses in Carson City, Ormsby County. (Herlan, Martinelli).

COCCIDS - NEW YORK - Eriococcus azaleae severely damaging rhododendron in Suffolk County. (N.Y. Wkly. Rpt., Apr. 27). MARYLAND - Unaspis euonymi heavy on euonymus at 3 locations in Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Eriococcus gillettei severe on redcedar at a location in Prices Fork, Montgomery County. (Vest). FLORIDA - Parlatoria proteus severe on 2 Podocarpus nagi at Riveria Beach, Palm Beach County, April 17. (Long). Ferrisia virgata moderate on Erythrina sp. at Marathon Shores, Monroe County, April 24. (Knowles). NEW MEXICO - Unaspis euonymi difficult to control on euonymus in Albuquerque, Bernalillo County. (N.N. Coop. Rpt.). CALIFORNIA - Lecanium fletcheri adults heavy on Taxus sp. nursery stock in Sacramento, Sacramento County. L. pruinosum heavy on magnolia trees in Menlo Park, San Mateo County. Aspidiotus aesculi heavy on willows in Corning, Tehama County. Gossyparia spuria nymphs medium on Zelkova serrata nursery stock in Danville, Contra Costa County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Pupation about complete in American holly at 3 Prince Georges County locations. (U. Md., Ent. Dept.).

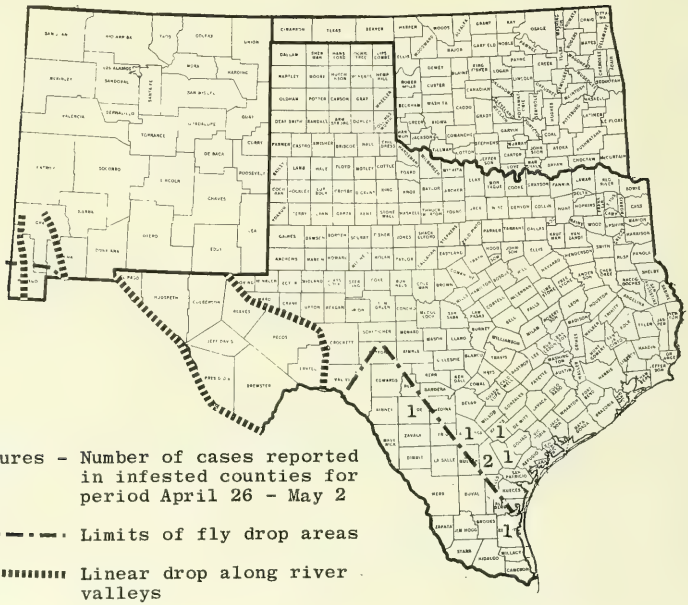
A CARPENTER BEE (Ceratina sp.) - DELAWARE - Infesting roses in an area of New Castle County; adults now emerging. (Bray).

SPIDER MITES - CALIFORNIA - Oligonychus subnudus heavy on Pinus radiata nursery stock in Portola Valley, San Mateo County. Petrobia harti heavy on Oxalis corniculata in Garden Grove, Orange County. Bryobia praetiosa medium on gardenia nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.). NEVADA - Unspecified species medium on ornamental juniper in Carson City, Ormsby County. (Herlan, Martinelli). ARIZONA - Oligonychus coniferarum infesting arborvitae and O. ununguis infesting juniper. (Ariz. Coop. Sur.). FLORIDA - Tetranychus telarius severe on Scaevola frutescens at Marathon Shores, Monroe County, April 24. (Knowles).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period April 26 - May 2, a total of 7 screw-worm cases was reported in TEXAS. No infestations have been reported from New Mexico, Oklahoma, Arkansas nor Louisiana this year. During this same period in 1963, a total of 100 cases were reported, and a total of 1,212 cases were submitted for the same period in 1962. Scattered screw-worm cases have been reported in the northern portion of the Republic of Mexico. A total of 97,547,450 sterile screw-worm flies was released during this period: 25,678,250 in Texas; 378,000 in New Mexico; 100,000 in Arizona; 71,391,200 in Republic of Mexico. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 26 - May 2

Limits of fly drop areas

Linear drop along river valleys

FACE FLY (Musca autumnalis) - MASSACHUSETTS - Large numbers observed resting on automobiles and sides of buildings in Amherst April 26-27; first observation of season. (Wave). MICHIGAN - Counts of 3 per face observed on cattle in Ingham County April 26. (Dowdy).

HOUSE FLY (Musca domestica) - OKLAHOMA - Averaged 3-5 per scudder grid in barns in Stillwater area, Payne County. (Okla. Coop. Sur.). UTAH - Active in Leeds-Santa Clara area of Washington County. (Knowlton).

LESSER HOUSE FLY (Fannia canicularis) - SOUTH CAROLINA - Extremely numerous in vicinity of poultry laying houses in Edgefield County. Larvicides being applied to manure pits. (Nettles et al.).

MOSQUITOES - MINNESOTA - Aedes vexans larvae now in third and fourth stages in St. Paul-Minneapolis area; Culiseta inornata third-stage larvae also collected. Total of 17 species of Aedes larvae collected to May 1. Some Aedes trichurus and A. implicatus have emerged. (Minn. Ins. Rpt.). IOWA - Male Culiseta inornata taken at Ames; indicates emergence of first-brood adults. (Iowa Ins. Inf., Apr. 28). ALABAMA - Floodwater species quite heavy in Dallas and Cherokee Counties following flood conditions. (Granberry et al.). UTAH - Mosquitoes, including some Aedes dorsalis, very numerous and annoying farmers in some alfalfa and sugar beet fields in St. George-Washington area, and along Virgin River in Washington County. Some also annoying in Santa Clara area. (knowlton).

HORN FLY (Haematobia irritans) - OKLAHOMA - Populations increased slightly in Payne County area; light (50-150 per head) in east central area; moderate to heavy in southeast area. (Okla. Coop. Sur.). MISSOURI - Light on cattle in southeast; averaged 25 per head. (Houser, Thomas, Wood).

SHEEP KED (Melophagus ovinus) - UTAH - More numerous on a flock at Cedar City, Iron County, than for many years. Moderately numerous on flock at Panguitch, Garfield County, with some animals heavily infested. (Knowlton).

BLACK FLIES - SOUTH CAROLINA - Unusually heavy in Hampton County area. Of considerable concern on cows; causing udders to bleed. Bothering ponies in Barnwell County area. (Nettles et al.). MICHIGAN - Heavy flight observed April 25 in Shiawassee County. (Dowdy).

CHIRONOMID MIDGES - MINNESOTA - Large numbers reported emerging from some lakes. (Minn. Ins. Rpt.).

CATTLE LICE - UTAH - Causing cattle to rub in Millard, Juab, Beaver and Washington Counties. Controls applied to 2,000 cattle in Millard County. Some cattle at Fayette, Sanpete County, and at Levan, Juab County, heavily infested. (Knowlton). IOWA - Solenopotes capillatus infesting group of feeder cattle. (Iowa Ins. Inf., Apr. 15).

HORNETS - CONNECTICUT - Becoming very active. A problem in homes at Willington and Willimantic. (Savos).

TICKS - OKLAHOMA - Large numbers of engorged Amblyomma americanum (20-100 per head) present on cattle in southeast area. Dermacentor variabilis becoming common on pets and Rhipicephalus sanguineus causing concern, both in Stillwater area of Payne County. (Okla. Coop. Sur.). UTAH - Unspecified species noted on cattle and humans in Scipio area, Millard County. Otobius megnini infesting some cattle in Juab and Beaver Counties. (Knowlton). OREGON - First Ixodes pacificus adults of season collected in Hood River County at several forest service camps in Columbia River gorge. (Grisbrenk).

CHICKEN MITE (Dermanyssus gallinae) - KANSAS - Present throughout apartment building in Riley County, northeast; attacking residents. Apparently coming from pigeons. (Elzinga).

BLACK WIDOW SPIDER (Latrodectus mactans) - WASHINGTON - Two females collected at comfort station at College Place, Walla Walla County. (Landis).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Continues a nuisance in homes in Walnut Creek, Contra Costa County; Sacramento, Sacramento County; and Hollister, San Benito County. (Cal. Coop. Rpt.). NEVADA - Heavy on lawns and large numbers continue to enter homes in southern Washoe County. (Coop. Rpt.). UTAH - Entered homes southwest of Salt Lake City on April 28. Annoying in Kanab, Kane County. (Knowlton). WYOMING - Becoming a problem to homeowners in Fremont and Washakie Counties. Slight amounts of damage also noted in lawns. (Marks). MICHIGAN - Continues troublesome to homeowners. Egg laying now in progress. (Dostal, Janes, Wells). IOWA - Reported troublesome in all areas of State. (Iowa Ins. Inf., Apr. 28). MARYLAND - A nuisance in and around several homes at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - Annoying homeowners on Loysville, Perry County. (Simons, Apr. 22). NEW YORK - Annoying in Chemung County homes. (N.Y. Wkly. Rpt., Apr. 27). CONNECTICUT - Becoming increasingly prevalent. (Savos).

ANTS - MARYLAND - Winged adults of Tetramorium caespitum appeared in home at University Park, Prince Georges County. (U. Md., Ent. Dept.). IOWA - Various species reported annoying in all areas of State. (Iowa Ins. Inf., Apr. 15). UTAH - Formica sp. numerous at a location in Milford, Beaver County. (Knowlton).

CARPET BEETLES - IOWA - Various species reported from all parts of State during past month. (Iowa Ins. Inf., Apr. 15). NEW YORK - Unspecified species a nuisance in Chemung County homes. (N.Y. Wkly. Rpt., Apr. 27).

SPRINGTAILS - TEXAS - Heavy populations annoying in Brazos County homes. (Newton).

FLEAS - GEORGIA - Numerous in yards in Griffin area, Spalding County. (Beckham).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - NEW YORK - Appearing in homes in Chemung County. Causing extreme concern to homeowners in Suffolk County. (N.Y. Wkly. Rpt., Apr. 27). NEW JERSEY - Winged forms continue of concern to homeowners. (Ins.-Dis. Newsltr.). MARYLAND - Winged forms noted inside and outside several buildings in Prince Georges and Washington Counties, and at Baltimore. (U. Md., Ent. Dept.). IOWA - Swarmed in Jefferson, Davis City and Mt. Ayr. (Iowa Ins. Inf., Apr. 28). OKLAHOMA - Swarming in Payne County area. (Okla. Coop. Sur.). TEXAS - Winged forms of undetermined species swarming in several areas of State; many inquiries received. (Meisch). UTAH - Unspecified species infesting home, barn and lumber at Milford, Beaver County. (Knowlton). IDAHO - Adults, probably R. hesperus, collected in Lewiston, Nez Perce County. (Hulbert). NEVADA - Swarming in southern Washoe County. (Coop. Rpt.).

CARPENTER ANTS (Camponotus spp.) - CONNECTICUT - Infestations becoming increasingly common throughout State. (Savos). NEW YORK - Appearing in households in Chemung County. (N.Y. Wkly. Rpt., Apr. 27). OREGON - Emerging in homes at scattered locations in Jackson County. (Berry).

STORED-PRODUCT INSECTS

RUSTY GRAIN BEETLE (Cryptolestes ferrugineus) - CALIFORNIA - This and Carpophilus lugubris (dusky sap beetle) medium to heavy in dried figs in Fresno, Fresno County. Other storage pests also present. (Cal. Coop. Rpt.).

LARDER BEETLE (Dermestes lardarius) - MICHIGAN - Larvae reported active in cardboard cartons in warehouse in Calhoun County; same premises infested in 1963. (Rowe).

CADELLE (Tenebroides mauritanicus) - OHIO - Adults collected from old grain screening at elevator in Clark County. (Lyon).

YELLOW MEALWORM (Tenebrio molitor) - OHIO - Light numbers found between grain sacks at elevator in Clark County. (Lyon).

AN APHID (Neotoxoptera formosana) - COLORADO - Infested onions in Fort Collins, Larimer County, chain store in early March; this is a new State record. Det. by V. F. Eastop. (Colo. Ins. Sur.). See also CORRECTIONS page 451.

BENEFICIAL INSECTS

LADY BEETLES - WASHINGTON - Hippodamia convergens and Coccinella transversoguttata abundant on alfalfa grown for seed at Gardena Bench, near Umatilla, Walla Walla County. (Featherstone, Halfhill; Apr. 27). IDAHO - Several species common in all fields checked in Canyon County. (Bechtolt). UTAH - Occasional specimen of unspecified species found in Salt Lake County alfalfa, four species moderate in pea aphid infested alfalfa throughout lower elevations of Washington County. (Knowlton). NEW MEXICO - Unspecified species abundant in all alfalfa checked. (N.M. Coop. Rpt.). OKLAHOMA - Several species present in moderate to heavy numbers in alfalfa and small grains. (Okla. Coop. Sur.). KANSAS - Larvae of unspecified species not controlling aphids where heavy in wheat and alfalfa in southeast areas. (Peters). MISSOURI - Adults and larvae of Coleomegilla sp. and H. convergens reducing aphid populations on legumes in southeast area; ranged 25-50 per 100 sweeps. (Houser, Thomas, Wood). ARKANSAS - Adults and larvae of several species active in small grains in central areas. (Ark. Ins. Sur.). ALABAMA - Populations of Hippodamia glacialis, Coleomegilla maculata fuscilabris and Cycloneda sanguinea built up tremendously in clovers and vetch over State where aphid populations high. (Schuler et al.). FLORIDA - In second-growth alfalfa at Gainesville, Alachua County, 31 adults, 16 pupae and 28 larvae of Hippodamia convergens collected in 100 sweeps on April 30. (Mead). CONNECTICUT - Chilocorus stigma emerged from hibernation; no eggs noted to April 29. (Savos). NEW YORK - Chilocorus stigma adults noted on Scotch pines severely infested with pine needle scale at Martville, Cayuga County, April 25. (N.Y. Wkly. Rpt.). OHIO - Coleomegilla maculata abundant in aphid-infested forage fields throughout southwest area. (Lyon). ILLINOIS - Adults of unspecified species varied 0-80 per 100 sweeps in clover and alfalfa in west, west-southwest, southwest and southeast districts. Few young larvae observed in southwest and southeast districts. (Ill. Ins. Rpt.).

GREEN LACEWINGS (Chrysopa spp.) - UTAH - Moderately numerous in pea aphid infested alfalfa throughout lower elevations in Washington County. (Knowlton). OKLAHOMA - Moderate to heavy numbers present in alfalfa and small grains. (Okla. Coop. Sur.). MISSOURI - Chrysopa sp. adults taken in small numbers on alfalfa and wheat. (Houser, Thomas, Wood). ILLINOIS - C. oculata adults fairly common in southern area. (Ill. Ins. Rpt.). NEW YORK - Chrysopa sp. adult noted on tree foliage at Martville, Cayuga County, April 25. (N.Y. Wkly. Rpt.). ALABAMA - C. oculata increased greatly in clovers and vetch over State where populations of aphids high. (Schuler et al.).

BROWN LACEWINGS (Micromus spp.) - ALABAMA - Built up to large numbers over State in clovers and vetch where aphid populations high. (Schuler et al.). FLORIDA - Micromus sp. averaged 4 per 100 sweeps of second-growth alfalfa at Gainesville, Alachua County, April 30. (Mead).

LACEWINGS - NEW MEXICO - Abundant in all alfalfa checked. (N.M. Coop. Rpt.). KANSAS - Larval numbers not sufficient to control heavy aphid populations in wheat and alfalfa in southeast areas. (Peters).

DAMSEL BUGS - KANSAS - Larvae not sufficiently numerous in alfalfa and wheat in southeast areas where aphid populations heavy. (Peters). ALABAMA - Numbers increased greatly in clovers and vetch over State where aphids present in large numbers. (Schuler et al.). FLORIDA - Nabis sp. averaged 6 per 100 sweeps in second-growth alfalfa at Gainesville, Alachua County, April 30. (Mead).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Populations increased greatly in clovers and vetch over State where aphid numbers high. (Schuler et al.). MISSOURI - Few adults found on alfalfa in southeast. (Houser, Thomas, Wood).

FLOWER BUGS (Orius spp.) - UTAH - O. tristicolor and O. insidiosus numbers moderate in alfalfa infested with pea aphid throughout lower elevations of Washington County. (Knowlton).

SYRPHID FLIES - MASSACHUSETTS - Eggs of unspecified species becoming abundant on new apple foliage in western area. No hatch to May 2. (Wave). CONNECTICUT - Eggs noted in most areas of State. (Savos). NEW YORK - Eggs noted April 18 in Niagara County apple orchards. (N.Y. Wkly. Rpt.). ILLINOIS - Larvae noted in clover and alfalfa in southern and western areas. (Ill. Ins. Rpt.). MISSOURI - Small numbers of larvae swept from alfalfa in southeast. (Houser, Thomas, Wood).

CHINESE MANTIS (Tenodera aridifolia sinensis) - SOUTH CAROLINA - Egg cases noted at Anderson, Anderson County; quite numerous a little further north. Adults first recorded in State only 2 years ago. (Nettles et al.).

HONEY BEE (Apis mellifera) - MINNESOTA - Early reports from apiary inspectors indicate overwintering mortality very low. Colonies low in pollen, but early trees and shrubs now yielding fresh supplies. (Minn. Ins. Rpt.). NEW MEXICO - Cold and windy weather prevented buildup throughout State. (N.M. Coop. Rpt.).

ICHNEUMONS (Ophion spp.) - WISCONSIN - Ten specimens collected at Mazomanie last week of April. (Wis. Ins. Sur.).

MISCELLANEOUS INSECTS

NOCTUID MOTHS - WISCONSIN - Caenurgina crassiuscula first appeared in Madison light trap on April 16; Scotogramma trifolii appeared on April 27. Total of 17 Pseudaletia unipuncta, 1 Peridroma saucia and 4 C. crassiuscula caught at Mazomanie last week of April. (Wis. Ins. Sur.). NORTH DAKOTA - Trace numbers of Agrotis ipsilon and Peridroma saucia observed at lights at Fargo, Cass County. (Gall). OREGON - Small numbers of Peridroma saucia appearing at blacklight traps in Willamette Valley. (Larson). CALIFORNIA - First Heliothis zea moths taken in light trap at Shafter, Kern County, April 17. (T. Leigh).

GOOSEBERRY FRUITWORM (Zophodia convolutella) - WISCONSIN - Adults appeared in Madison trap on April 27. (Wis. Ins. Sur.).

A PYRAUSTID MOTH (Nomophila noctuella) - WISCONSIN - First appeared in Madison light trap April 16 and now commonly caught. (Wis. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nyphalis antiopa) - NEVADA - Adults observed in southern Washoe County. (Coop. Rpt.).

A COREID BUG (Leptocoris rubrolineatus) - NEVADA - Adults active in Minden-Gardnerville area, Douglas County. (Martinelli).

A SPRINGTAIL - OHIO - Very heavy populations taken in sweepings of alfalfa along bluegrass pasture; ranged 75-100 per sweep. (Lyon).

TROMBIDIID MITES - OHIO - Continue present in forage fields in southwestern area. (Lyon).

CORRECTIONS

CEIR 14(9):111 - THRIPS - IDAHO - Thrips attacking cabbage in storage in Payette County determined as ONION THRIPS (Thrips tabaci). (Scott).

CEIR 14(11):174 and (14):274 - HICKORY SHUCKWORM (Laspyresia caryana) should read (Laspeyresia caryana).

CEIR 14(11):179 - SHALLOT APHID (Myzus ascalonicus) - COLORADO - New determination: Neotoxoptera formosana. Det. by V. F. Eastop. This is a new State record. (Thatcher).

CEIR 14(17):367 - GREENBUG (Schizaphis graminum) - KANSAS - Should read "An occasional wingless specimen seen ..." (Peters).

CEIR 14(17):375 - FOREST TENT CATERPILLAR (Malacosoma disstria) - VIRGINIA - Note should be deleted from this section and included under EAST TENT CATERPILLAR (Malacosoma americanum). (Matheny).

CEIR 14(17):379 - BLACK CARPET BEETLE (Attagenus piceus) - ALABAMA - Delete note. Should be CARPET BEETLE (Anthrenus scrophulariae). (McQueen).

CEIR 14(17):382 - CORRECTIONS - CEIR 13 and 14 - M. texana should read M. texanum.

PENNSYLVANIA - First hatching of GYPSY MOTH (Porthetria dispar) noted May 1; only 2 larvae on egg cluster at Northampton County. (May). OYSTERSHELL SCALE (Lepidosaphes ulmi) very heavy on willow in Butler County; no hatching noted. (Adams). EASTERN TENT CATERPILLAR (Malacosoma americanum) noted hatching and few days old on April 24 in Lycoming County. (Campbell). A FLOWER FLY (Metasyrphus wiedemanni) active and laying eggs on shrubs at State College, Centre County; 4-6 specimens per minute observed. (Gesell). Large numbers of BLACK VINE WEEVIL (Brachyrhinus sulcatus) in home in Huntingdon, Huntingdon County. Damage to alfalfa by ALFALFA WEEVIL (Hypera postica) beginning to show quite severely on untreated fields; treated fields very clean. (Udine). PEA APHID (Acyrthosiphon pisum) ranged light to moderate on alfalfa in Snyder and Huntingdon Counties. (Gesell, Udine). SLUGS caused severe damage to petunias in Mifflin County greenhouse. Damage to iris growing outside beginning to appear as slugs become active in Centre County. (Udine).

ADDITIONAL NOTES

NORTH CAROLINA - OAK LECANIUM (Lecanium quercifex) heavy on oaks locally in Anson County April 23 (Wray); also noted in Nash, Halifax and Cumberland Counties on oaks (Robertson). EUONYMUS SCALE (Unaspis euonymi) infested euonymus in Forsyth County. (Dixon, Robertson). MIDGE larvae causing concern in water well in Person County. (Reams, Robertson). VARIED CARPET BEETLE (Anthrenus verbasci) heavy in church in Wake County. (Wray). CLOVER MITE (Bryobia praetiosa) reported infesting several buildings in Ashe County. (Sheets, Robertson). BEAN WEEVIL (Acanthoscelides obtectus) adults noted in home in Watauga County on April 4. (Johnson, Mount). Light numbers of a SPIDER BEETLE (Ptinus sp.) found in home in Bertie County. (Thompson, Wright). Adults of SEED-CORN MAGGOT (Hylema platura) found dead on various plants in several areas of State. (Robertson, Mount). SILKY ANT (Formica fusca) caused concern by its mound building in Bladen County location. (Bowers, Wray, Smith).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaria (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Harpalis diffusus (sugar beet armyworm)	Faltia autumnalis (armyworm)	Melichlus virescens (tobacco budworm)	Helicoverpa zea (bollworm, corn earworm)	Leucania frugiperda (fall armyworm)	Loxostege commutalis (alfalfa webworm)	Loxostege sticticalis (sugar webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																						
Davis 4/25-5/1			BL		3			6							15				95			Misc.
FLORIDA																						
Gainesville 4/29			BL					4							8							
GEORGIA																						
Tifton 4/23-29			BL							7	0						0	0				
ILLINOIS (County)																						
Champaign 4/24-5/1	43-69	Trace													5				34			
KANSAS																						
Garden City 4/22, 24				3											3				1			
Hays 4/23						1										1			1			
Manhattan 4/23-30				3			1								8	2			9			
Mound Valley 4/23,25,26				2			2								4	1			32			
Wathena 4/21-23				1			2								5	1			6			
MISSISSIPPI																						
Stoneville 4/25-5/1	53-82	4.06"	MV	4		8		4		1					5	3			7			
Stoneville 4/25-5/1	53-82	4.06"	BL	6		6		3	1	1					3				9			
MISSOURI																						
Portageville 4/15-28																1			9			
NEBRASKA																						
North Platte 4/19-26				8		3									115				4			
SOUTH CAROLINA (Counties)																						
Oconee 4/11-17				1				0							4	3			2			
Oconee 4/18-24				2				1							1	5			11			
Charleston 4/27-5/3	53-82	3.97"	BL	13			0	0	0	0	0				4	2	0	0	3		1	
TEXAS																						
Brownsville 4/23-30			6 BL	25			28		1151	25	311	33		4143		67	4	56	26	1		354	
Waco 4/25-5/1				74			2		87		12					50	25			59	14	8	
WISCONSIN																						
Middleton 4/24-30			BL	2												8				11			
Madison 4/24-30	32-71		BL	10												16				51			
Mazomanie 4/24-30																1				17			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; peau. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1963

Compiled in Survey and Detection Operations, PPC, ARS

The loss of corn grown for grain from damage attributed to the European corn borer (Ostrinia nubilalis) in 1963 is estimated to be over 120,648,000 bushels. This loss is approximately 2.95 percent of the total national crop estimated at 4,081,791,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers for corn 2/, is $127,833,000. These loss estimates are only for the States shown in Table 1 and are based on the counties or districts surveyed during the fall of 1963 within those States 3/.

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data 1/, and prices received 2/, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1963 3/. The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated losses to grain corn for the past 12 years in States where the fall abundance survey was conducted are as follows:

1963	120,648,000	Bushels	$ 127,838,000
1962	88,245,000	"	93,695,000
1961	65,044,000	"	68,998,000
1960	102,991,000	"	96,085,000
1959	67,763,000	"	71,979,000
1958	100,699,000	"	98,434,000
1957	180,897,000	"	158,841,000
1956	97,971,000	"	119,535,000
1955	155,355,000	"	182,579,000
1954	191,614,000	"	261,415,000
1953	90,000,000	"	125,466,000
1952	53,270,000	"	77,205,000

1/ Crop Production, 1963 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1963.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production - 1962 and 1963 - By States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1963.

3/ Cooperative Economic Insect Report, 14(3):39-46.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1963

State	Districts Included 1/	Total State Production	Estimated Data: Value Per Bushel	Estimated Data: Value of Production	Estimated Data: Loss of Crop	
	Number	1,000 Bu.	Dollars	$1,000	1,000 Bu.	$1,000
Arkansas	4	5,984	1.26	7,540	15	19
Delaware	1	7,738	1.35	10,446	183	247
Illinois	7	752,165	1.09	819,860	20,593	22,446
Indiana	12	403,854	1.04	420,008	4,298	4,470
Iowa	12	860,320	1.04	894,733	46,046	47,888
Kansas	3	62,100	1.12	69,552	436	488
Maryland	3	20,800	1.33	27,664	537	715
Minnesota	7	353,556	1.03	364,163	12,526	12,901
Missouri	7	203,740	1.15	234,301	4,230	4,864
Nebraska	7	287,392	1.09	313,257	21,470	23,403
New Jersey	1	4,380	1.49	6,526	77	115
North Dakota	1	11,767	.98	11,532	1,327	1,300
Ohio	5	226,434	1.05	237,756	872	915
South Dakota	6	151,872	.99	150,353	7,422	7,347
Wisconsin	9	105,140	1.16	121,962	616	715
Totals		3,457,242		3,869,653	120,648	127,833

1/ Cooperative Economic Insect Report, 14(3):39-46.

SURVEY METHODS FOR SURVEY ENTOMOLOGISTS

This is a continuation of the work begun by the North Central Branch, Entomological Society of America, Committee on Insect Surveys and Losses during 1960-61. The members (1963-64) of this committee are Alfred C. Dowdy, O. H. Hammer, Philip W. Smith, Clarence E. White and Leroy L. Peters (Chairman).

CORN ROOTWORM (*Diabrotica* spp.) LOSS SURVEY

This survey method was developed for the survey entomologist to aid in making a reasonably accurate estimate of the damage and corresponding loss of field corn caused by corn rootworms. This survey concerns the loss caused by the LARVAL stage.

While accuracy is not 100 percent, it is considered that the additional time required to gain 100 percent accuracy is not justified when 90-95 percent accuracy may be attained with the amount of time available to the survey entomologist. Specialized and often expensive equipment is not needed to apply the method described.

Timing of Survey

Timing of this survey is not critical. Kernels should be fully developed though not necessarily dented. The longer the survey is delayed, the more accurate it will be. It is suggested that it be made in the fall prior to the European corn borer-corn earworm survey.

Selecting the Fields

Examine at least 20 fields per district and more if time permits. Fields should be as evenly distributed over the district as possible. The number of fields and/or Crop Reporting Districts examined is left to the discretion of the survey entomologist. The number will vary due to crop distribution.

Forms for Recording Field Data

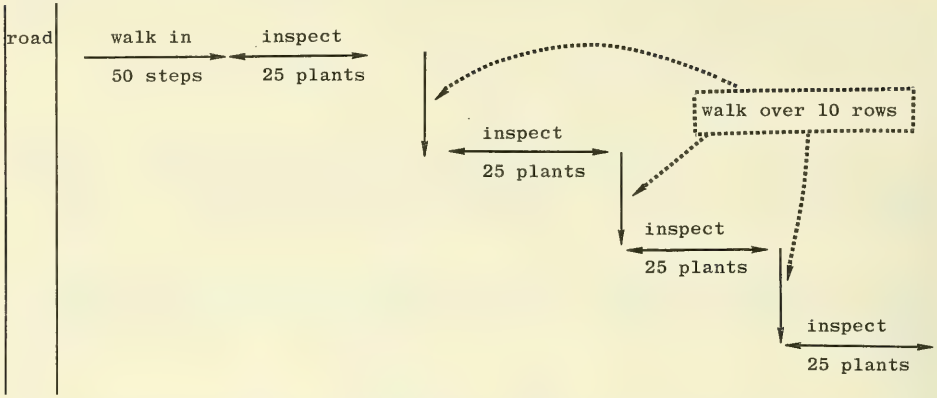
A standard method of recording the field data, which facilitates entry of field notes and transfer of data from the field log, is desirable. A suggested form is on page 458.

Method of survey

The sample should be obtained by walking 50 steps into the field from the most accessible point. At this point, beginning with the first 25 plants on the observer's right, observe and record the number of rootworm-lodged plants (a plant leaning more than 30 degrees from the vertical is considered a lodged plant) in the group. Move to the right 10 rows from the last plant observed and record the same data for the next 25 plants. Continue this until 100 plants have been examined (see example on page 456).

1/ Acknowledgement is due C. C. Burkhardt, Assistant Professor of Entomology, Kansas State University, Manhattan, Kansas, for his assistance in the design and evaluation of this method.

(Example of method of survey.)



CAUTION: EXAMINE ROOTS OF A FEW PLANTS TO MAKE CERTAIN THAT LODGING IS CAUSED BY CORN ROOTWORMS AND NOT BY OTHER FACTORS SUCH AS EXCESS WATER OR HERBICIDES. Rootworm damaged roots will have gouges and tunnels and will have several rings of roots partially or completely destroyed.

In each group of 25 plants, estimate and record the number of kernels on one ear from one straight and one rootworm infested lodged plant. The plants should preferably be growing side by side. If adjacent plants cannot be used, select straight plants growing as close to the lodged plants as possible. If 100 percent of the plants are lodged in the field, use this field as a record for lodged plants only and disregard straight plants for this field. The kernel count data may also be used to supplement the data collected for the corn earworm damage survey (Cooperative Economic Insect Report, Vol. 13, No. 16, pp. 420-422, April 19, 1963). To estimate the kernels on an ear, count the number of kernels on an average row on the ear and multiply by the number of rows on the ear.

Loss Calculation

The losses are best calculated on a district basis. Losses from all districts are added together to get the total loss for the State. The method of calculation is as follows:

1. Add together the number of plants lodged because of rootworms from all four groups of 25, in each field, and enter into the percent column on the recording sheet.

2. Add together the number of kernels per ear on lodged plants. Divide by four and enter into the average column for lodged plants. Do the same for the straight plants.

3. Total the percent columns and average kernel count columns for the district and divide by the number of fields examined. For average kernal count of lodged plants use number of fields infested.

4. $$100\% - \frac{(\text{Average kernels - lodged plants})}{(\text{Average kernels - straight plants})} \times 100 = \text{percent reduction per infested plant}$$

5. Percent reduction X percent plants infested = percent loss for all fields in district.

6. $\dfrac{\text{Crop Reporting Service total yield for district (bu.)}}{100\% - \%\ \text{loss}}$ - Crop Reporting Service total yield for district (bu.) = bu. loss for district

7. Sum total district losses (bushels) X unit value ($ per bu.) = Total State loss ($)

See example given below. Circled numbers refer to corresponding numbers above. Use the 20 fields on page 458 as an example of one district.

Field	Percent (1)	Est. kernels/ear Lodged plants average (2)	Est. kernels/ear Straight plants average (2)
1	9	517	701
2	37	536	688
3	15	684	716
etc.	--	--	--
20	216	6,558	14,355
	$\dfrac{216}{20} = 10.8$ (3)	$\dfrac{6,558}{13} = 504^*$ (3)	$\dfrac{14,355}{30} = 718^{**}$ (3)

(4) $100\% - \left(\dfrac{504^*}{718^{**}} \times 100\right) = 100\% - 70\% = 30\%$ reduction per lodged plant

(5) 30% x 10.8% = 3% yield loss all fields

(6) From Crop Reporting Service:
for District

Average yield/acre = 50 bu.
100,000 acres harvested
yield for district = 100,000 x 50 = 5,000,000 bu.

$\dfrac{5,000,000}{100\% - 3\%} - 5,000,000 = 154,639$ bus. loss for district

CORN ROOTWORM (Diabrotica spp.) LOSS SURVEY _____
(State)

DISTRICT _____ DATE _____ 19___ OBSERVER _____

Field No.	Plants Lodged					Estimated Kernel Count									
	Number					Lodged Plants					Straight Plants				
	Group I	Group II	Group III	Group IV	Percent	I	II	III	IV	Av.	I	II	III	IV	Av.
1	2	2	1	4	9	320	540	612	594	517	680	588	702	832	701
2	13	7	5	12	37	240	209	320	576	336	858	704	564	624	688
3	4	7	1	3	15	720	612	510	432	569	684	697	600	882	716
4	0	0	0	0	0					---	784	860	880	828	838
5	1	0	9	1	11	656		630	684	657	792	760	448	940	735
6	0	0	0	0	0					---	936	1000	616	752	826
7	0	0	0	0	0					---	770	720	936	846	818
8	0	0	0	0						---	688	592	784	840	726
9	7	8	0	3	18	624	504		836	655	858	574	924	720	769
10	0	0	0	0	0					---	864	768	665	672	742
11	0	0	0	0	0					---	738	630	820	828	754
12	5	1	11	13	30	336	506	680	360	471	792	490	720	612	654
13	0	0	0	0	0					---	656	784	848	880	792
14	0	0	3	1	4			672	736	704	864	752	704	648	742
15	5	9	10	6	30	504	99	300	656	390	616	558	630	656	615
16	2	0	0	13	15	544			736	640	616	688	720	820	711
17	4	0	0	6	10	234			336	285	656	640	630	546	618
18	0	5	0	4	9		595		304	450	592	672	608	465	584
19	5	0	3	0	8	476		416		446	532	459	828	774	648
20	2	6	7	5	20	528	532	255	437	438	748	704	800	448	678
					216					6558					14355

UNITED STATES DEPARTMENT OF RICULTURE
Hyattsville, Maryland 781

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OFFICIAL BUSINE

VOL. 14 No. 20 May 15, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 May 15, 1964 Number 20

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Hatching of TWO-STRIPED and MIGRATORY GRASSHOPPERS underway in Slope County, North Dakota, and early instars of several species of grasshoppers present in sections of north central and central Oklahoma. (p. 461). ALFALFA WEEVIL collected in 7 Missouri Counties (southeast) and 6 additional counties in Illinois. Larval feeding in untreated alfalfa heavy in Delaware and causing moderate to heavy injury to unprotected alfalfa in central and southern Maryland. Heavy infestations also observed in sections of Georgia and Alabama, and adults plentiful on alfalfa in south central Pennsylvania. (pp. 461, 474). PEA APHID light to moderate on alfalfa in northeast and north central Kansas, and generally moderate to occasionally heavy on first-cut stands of alfalfa in southwest, south central, central and north central areas of Oklahoma. (p. 462). MEADOW SPITTLE-BUG nymphs ranged light to moderate on alfalfa and clovers in 3 Maryland counties; hatching reported in Vermont, Pennsylvania and Indiana; full hatch occurred throughout Ohio; and spittle masses becoming noticeable in few alfalfa fields in Wisconsin. (pp. 464, 474). POTATO LEAFHOPPER reported in Illinois, North Dakota, Nebraska and Missouri. (p. 464).

Survival of EUROPEAN CORN BORER in Iowa was 87 percent, the highest encountered in past 10 years. Pupation of European corn borer underway in Illinois and Wisconsin. ARMYWORM continues to damage pastures, small grains and related crops over wide areas of north central and central Texas, and activity reported in small grains in southwest Oklahoma and southeast Missouri. Populations of BROWN WHEAT MITE declined in most southwestern Kansas fields due to natural mortality and local rains. (p. 465).

Activity of pests of deciduous fruit trees increasing. Eggs of RED-BANDED LEAF ROLLER hatching in sections of Pennsylvania and Maryland; pupation of CODLING MOTH underway in New York and Maryland; larvae of EYE-SPOTTED BUD MOTH active in Idaho, Connecticut and Vermont; PLUM CURCULIO adults active in Wisconsin, Pennsylvania, New Jersey and Delaware; ROSY APPLE APHID producing young in south central Pennsylvania; PEAR PSYLLA eggs hatching in Connecticut, Massachusetts, New York and Washington; and EUROPEAN RED MITE eggs hatching in Vermont, Connecticut, Massachusetts, Pennsylvania and Indiana. (pp. 467-469). On Florida citrus, CHAFF SCALE near record high level and GLOVER SCALE at record high level. Also, TEXAS CITRUS MITE above average and increasing on new leaves. (p. 470).

MEXICAN BEAN BEETLE adults appeared early and in great numbers in Alabama. BEAN LEAF BEETLE also plentiful in that State. (p. 472).

Economic damage by EUROPEAN PINE SAWFLY expected this season in Ohio, and infestations of another SAWFLY (*Neodiprion taedae linearis*) heavier in Arkansas than any time since the 1946-47 outbreak. (pp. 476-477). EASTERN TENT CATER-PILLAR building up conspicuously in central and northeast Ohio; quite noticeable in sections of Maryland, Pennsylvania, Rhode Island and Indiana. (pp. 474, 477). ELM LEAF BEETLE may seriously affect elms in Arkansas. Egg laying and/or adult activity noted in Ohio, Nebraska, Kansas, Oklahoma and Nevada. (p. 478).

DETECTION

A UROPODID MITE (*Fuscuropoda marginata*) recorded for first time in California. (p. 485). ALFALFA WEEVIL (*Hypera postica*) found in 7 southeast Missouri counties and in 6 additional Illinois counties. (p. 461).

ADDITIONAL NOTES

See page 474.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 481). Only five cases confirmed during the period May 3-9 in Texas.

Corn Insect Losses in Indiana in 1963. (p. 487).

Reports in this issue are for week ending May 8 unless otherwise indicated.

WEATHER OF THE WEEK ENDING MAY 11

Last week was warm in the East and cold in the West. A long wet spell in the southeastern States was ended as no rain of consequence occurred from Louisiana eastward.

PRECIPITATION: Rainfall was substantial but variable in amount from Oklahoma northeastward to Wisconsin. The Ohio Valley and New England were relatively dry and little or no rain fell along the Atlantic coast, in Florida, or along most of the Gulf coast. It was dry in New Mexico and adjacent parts of Texas, continuing the very dry pattern of recent weeks in that area. Precipitation west of the Rockies was mostly scattered and light but there was a foot of snowfall at Austin, Nevada.

TEMPERATURE: It was generally warm and humid east of the Rockies as temperatures 6° to 12° above normal occurred from west Texas to the Great Lakes. The same weather pattern brought much cloudiness and cool temperatures west of the Rockies with averages down to 12° below normal in Arizona. This pattern of relatively cool temperatures west of the Rockies has been prevalent in that area during the past 2 months. This condition should be reflected in a delayed spring but should also tend to conserve water supplies and soil moisture in that area.

Storminess and frontal activity were prevalent in the northern Plains during the week. On Wednesday, a wind gust to 83 m.p.h. was reported at Rochester, Minnesota, and there were winds of 60 m.p.h. behind a cold front. There were many damaging thunderstorms and a few tornadoes in a zone from the Dakotas eastward to Wisconsin and Illinois. On Friday, tornadoes caused heavy damage in southeast Michigan with a dozen or more persons killed.

As the storm center moved to eastern Canada, gale force winds continued over the Great Lakes and the North Atlantic States. Southerly winds brought abnormally high temperatures to southern New England. Windsor Locks, Connecticut, registered 95° Saturday afternoon. Warm, humid air continued to flow northward to the central Great Plains and scattered severe thunderstorm activity increased over parts of the Nation's midsection from Colorado to Kentucky and Tennessee and from Nebraska to Texas. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEW MEXICO - Very light hatch noted on rangeland in small area near Tatum, Lea County, during first part of April. During April 20-24, very light infestation of first and second instars found in few locations on east side of State as far north as Canadian River near Tucumcari, Quay County. Heaviest populations only 4-5 per square yard; mostly slant-face species. (N.M. Coop. Rpt.). OKLAHOMA - Early instars of several species present in margins of alfalfa fields in Kay County, north central. Light hatch also noted in Cleveland and McClain Counties, central area. (Okla. Coop. Sur.). NORTH DAKOTA - Hatching underway in southwest; few first instars of Melanoplus bivittatus and M. sanguinipes observed along roadsides in Slope County on May 6. Egg development in southwest ranged from clear to advanced segmentation; 3 percent clear, 18 percent coagulated, 39 percent eyespot and 40 percent segmented. Dominant species M. bivittatus, M. differentialis, M. packardii and M. sanguinipes. Approximately 6 percent of egg pods infested or destroyed by parasites and predators. Larvae of bee flies found in 19 percent, carabid larvae in 3 percent and immature blister beetles in 2 percent of pods; about 3 percent of eggs desiccated. (Brandvik). WISCONSIN - Eggs of M. femurrubrum and M. differentialis coagulated. Eggs of the latter and eggs of M. sanguinipes (collected last week) hatched in the laboratory. (Wis. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Larvae collected from alfalfa in Mississippi County on April 29. One adult collected in Mississippi County on April 30. (Ark. Ins. Sur.). MISSOURI - Larvae swept from alfalfa in Dunklin, New Madrid, Mississippi, Scott, Cape Girardeau and Pemiscot Counties. An adult swept from alfalfa in Perry County. Larvae averaged 80-100 per 100 sweeps and damage is slight. Pupation occurring in Pemiscot, Dunklin and New Madrid Counties. Collections made previously (CEIR 14(19):429) in Pemiscot and Cape Girardeau Counties. These are first collections in the State. (Houser, Thomas, Wood). ILLINOIS - Adults found in 6 new counties, namely Jefferson, Marion, Wayne, Wabash, Lawrence and Crawford. None found in Clinton, Washington, Perry and Randolph Counties, or in northwest Jackson County. Adult numbers apparently declining in Hardin County; 1 per 150 sweeps in one field which had 7 per 100 sweeps 2 weeks ago and 6 per 400 sweeps in another field which had 6 per 100 sweeps last week. Larvae, believed to be this species, averaged 0.8-1.4 per sweep in Hardin County. (Ill. Ins. Rpt.). OHIO - Larval populations vary 15-25 per sweep on high lands to 3-15 per sweep on bottom lands. Adults not numerous in Lawrence County, south central area. (Crawford, May 1). Active adults present in untreated fields in contrast to no adults on treated plots in Gallia County. (Smith, Apr. 29). NEW YORK - Two third instars and 9 overwintered adults taken in 200 sweeps in alfalfa near Fishkill, Dutchess County. No adults nor feeding larvae found in Ulster County. (N.Y. Wkly. Rpt., May 5). MASSACHUSETTS - Adults 4-20 per 100 sweeps on alfalfa in western area. Mating observed and first eggs of season recovered from field in Berkshire County on May 5. (Shaw). DELAWARE Larval feeding injury to first-growth alfalfa heavy in untreated fields, especially in areas of Sussex County where counts in a few fields averaged 100 per 10 sweeps. Adults averaged 5 per 10 sweeps in New Castle County field. (Burbutis). MARYLAND - Larvae causing moderate to heavy injury to unprotected alfalfa in central and southern areas. Egg laying continuing at high rate in Calvert, Carroll and Howard Counties. Larval development reached a peak May 8 on alfalfa in Prince Georges County. Larvae of all stages, and eggs in stems, infesting sweetclover at Barstow, Calvert County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Supplemental treatments necessary in Newberry County. (Nettles et al., May 5). GEORGIA - Averaged 25 per sweep in untreated alfalfa in Spalding County. (Tippins). Heavy larval infestation in untreated alfalfa in Clarke County. (Coleman). ALABAMA - Extremely heavy locally south of Ashland, Clay County, on April 22; 15-22 pupae per square foot. Very few adults emerged in area. Heavy adult emergence expected April 28-May 5. Adults and larvae appearing on black medic and white clover in Marshall County and considerable numbers of adults and larvae noted in some alfalfa in Tennessee Valley. (Kendrick et al., May 1). COLORADO - Larvae 0-10 per 100 sweeps in alfalfa in Otero and Pueblo Counties. (Schweissing). WYOMING - No adult activity noted in Laramie County alfalfa. (Marks).

UTAH - Larvae, recently hatched to full grown, in southwestern warmer areas, Kanab to Santa Clara. (Knowlton, May 5).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Larvae damaging emerging alfalfa leaves at Lewiston on May 1. (Kambitsch). IOWA - Larvae active in eastern area; estimated 5-10 percent of leaf surface of alfalfa and red clover destroyed in Scott and Clinton Counties. (Iowa Ins. Inf., May 4). WISCONSIN - Larvae causing noticeable injury to alfalfa in Grant and Lafayette Counties; ranged as high as 5 per clump of alfalfa. Larval development about half fully grown and half recently hatched. (Wis. Ins. Sur.). ILLINOIS - Larvae still vary 8-16 per square foot in west district. (Ill. Ins. Rpt.). MISSOURI - Infestations in southeast very light; averaging much less than 1 per plant and 50-75 percent infected with fungus. (Houser, Thomas, Wood).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Adults averaged 1 per sweep on ladino clover at Barstow, Calvert County. (U. Md., Ent. Dept.).

CLOVER HEAD WEEVIL (Hypera meles) - ARKANSAS - Numbers reported building up on crimson clover in southern area. (Ark. Ins. Sur., Apr. 18).

CLOVER ROOT CURCULIO (Sitona hispidula) - MASSACHUSETTS - Ranged 1-3 per 100 sweeps on alfalfa in western area. (Shaw). ILLINOIS - Adults of Sitona spp., mostly this species, ranged 10-60 per 100 sweeps in southern half of State in clover and alfalfa. (Ill. Ins. Rpt.). KANSAS - Occasional adult found in alfalfa in northeast and north central areas. (Peters).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NORTH DAKOTA - Considerable damage by adults observed on sweetclover in southeast. (Frye). NEBRASKA - Adults averaged 6 per 10 sweeps in sweetclover in Lancaster County. (Bergman).

A WEEVIL (Sitona scissifrons) - NEBRASKA - Averaged 33 per 10 sweeps in alfalfa in Seward County and 2 per 10 sweeps in Dixon County. (Calkins).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Light, 1 per 10 sweeps, reported from Delta and Kaufman County vetch. (Turney).

CLOVER STEM BORER (Languria mozardi) - ILLINOIS - Adults common in clover and alfalfa in southern half of State. (Ill. Ins. Rpt.).

CLICK BEETLES - MASSACHUSETTS - Counts 1-3 per 100 sweeps on alfalfa in western area. (Shaw).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Small numbers found May 1 at Rural Hill near Belleville and Woodville, Jefferson County; infestation spotty and injury light. (N.Y. Wkly. Rpt., May 5).

PEA APHID (Acyrthosiphon pisum) - WASHINGTON - Second and third instars appearing on alfalfa at Yakima, Yakima County; 0-7.5 per sweep. Of 6 fields examined, first appearance in 2 of them. All stages observed on alfalfa grown for seed. Moderate infestation in one field at Walla Walla, Walla Walla County; 8-118 per sweep. In Lowden area of Walla Walla County, 10 percent alates and 2-291 per sweep on alfalfa grown for seed with some chlorosis appearing in heavily infested plants. (Featherstone, Halfhill). OREGON - Ranged 1-17 per sweep in treated alfalfa following treatment for severe infestations in north Umatilla County. (Halfhill). COLORADO - Counts 0-10 per 100 sweeps on alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Schweissing). KANSAS - Ranged from 25 to about 300 per sweep on alfalfa in northeast and north central areas. Populations variable; damage appearing in heavier infested fields. Predators building up in most fields. (Peters). OKLAHOMA - Generally moderate to occasionally heavy on first-cut stands of alfalfa in southwest, south central, central and north central areas; very light on second-cut stands. Predators heavy in most north central area fields. (Okla. Coop. Sur.). TEXAS - Building up rapidly on vetch

and alfalfa in Delta and Hunt Counties. (Turney). Populations appear to be decreasing in Brazos County; parasitism high. (Randolph). NEW MEXICO - Remains light in Dona Ana and Socorro County alfalfa. (N.M. Coop. Rpt.). NEBRASKA - Counts 3-13 per 10 sweeps in legumes in south and southeast areas. (Bergman). Ranged 2-6 per 10 sweeps in Butler, Dixon, Saunders and Seward Counties. (Calkins). MISSOURI - Building up in southeast; 1,500-2,000 per 100 sweeps. (Houser, Thomas, Wood). ILLINOIS - Continues low in alfalfa in southern half of State; 40-4,000 per 100 sweeps. Predators, parasites and disease abundant. No damage indicated in first cutting of hay. (Ill. Ins. Rpt.). WISCONSIN - Wingless forms appearing. Highest numbers occurred in field near Spring Green with counts greater than 100 per sweep. Winged forms in this field averaged 1 per 10 sweeps although those with wing pads nearly 6 times as plentiful. Populations quite variable, but averaged about 3 per sweep in southwestern area. (Wis. Ins. Sur.). MARYLAND - Generally light to moderate on alfalfa in Carroll and Howard Counties. Averaged over 20 per sweep on ladino clover at Barstow, Calvert County. (U. Md., Ent. Dept.). DELAWARE - Populations on alfalfa throughout State remain fairly high (1,000-2,000 per 100 sweeps), but apparently not increasing. (Burbutis). MASSACHUSETTS - Ranged 20-75 per 100 sweeps on alfalfa in western area. (Shaw).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increases continue in infested alfalfa in Graham County; 1-3 per trifoliate leaf. (Ariz. Coop. Sur.). UTAH - Spotted but rare on alfalfa in Washington County. (Knowlton). OKLAHOMA - Moderate to heavy in Garvin County, south central area. Only occasional specimens noted in Payne, Noble and Kay Counties, north central area. (Okla. Coop. Sur.). NEBRASKA - Counts per 10 sweeps 7 in Butler County, 2 in Lancaster County and 7 in Saunders County. (Calkins, Bergman). SOUTH DAKOTA - Third instar found in Missouri River bottom, Charles Mix County. (Hintz). WISCONSIN - Wingless forms averaged 1 per sweep in alfalfafield in western Dane County and 3 per sweep in a Sauk County field. Overwintering of species in area apparent as well as in Brodhead area where most observations made. Populations averaged 30 per sweep in Brodhead area and wingless forms averaged 3 per 5 sweeps. Specimens with wing pads occurred in ratio of 1:30. The parasite, Trioxys utilis, not as common as during previous week. T. utilis also observed in Mazomanie area. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults collected on alfalfa grown for seed in Lowden area of Walla Walla County; first of season. (Featherstone, Halfhill). IDAHO - Nymphs numerous in Lewiston area alfalfa on May 1. (Kambitsch). WYOMING - Adults averaged 4 per 100 sweeps in Laramie County alfalfa. (Marks). COLORADO - Counts 0-50 per 100 sweeps on alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Schweissing). UTAH - Nymphs, first to third stages, light to moderate on alfalfa throughout Washington County. (Knowlton). ARIZONA - Light in Yuma County, but range light to heavy in Graham County; averaged 45 per 100 sweeps in latter county. (Ariz. Coop. Sur.). NEW MEXICO - Light, only 2-8 per 100 sweeps, in Socorro County alfalfa. (N.M. Coop. Rpt.). OKLAHOMA - Light to moderate with scattered high counts (up to 35-50 per 10 sweeps) noted in north central area alfalfa. (Okla. Coop. Sur.). SOUTH DAKOTA - Ranged 3-10 adults and nymphs per 10 sweeps in Charles Mix, Bon Homme and Yankton Counties. (Hintz).

TARNISHED PLANT BUG (Lygus lineolaris) - MASSACHUSETTS - Counts 3-5 per 100 sweeps on alfalfa in western area. (Shaw). NEW YORK - Overwintered adults common in field May 1 at Rural Hill near Belleville and Woodville, Jefferson County. (N.Y. Wkly. Rpt., May 5). MARYLAND - Light to moderate on most alfalfa and clover throughout State. (U. Md., Ent. Dept.). ILLINOIS - Adults varied 0-120 per 100 sweeps in clover and alfalfa in southern half of State; few nymphs observed. (Ill. Ins. Rpt.). MISSOURI - Adults and nymphs averaged 90-100 per 100 sweeps on alfalfa in southeast. (Houser, Thomas, Wood). NEBRASKA - Adults 3-13 per 10 sweeps in legumes in south and southeast areas. (Bergman). KANSAS - Found in all alfalfa examined in northeast and north central districts; ranged from 20 to 100 per 100 sweeps. (Peters).

RAPID PLANT BUG (Adelphocoris rapidus) - ILLINOIS - Nymphs 10-60 per 100 sweeps in alfalfa in southern half of State; no adults observed. (Ill. Ins. Rpt.). WISCONSIN - Eggs hatched and nymphs present in few fields in western area. (Wis. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Nymphs 0-80 per 100 sweeps in alfalfa in southern half of State; no adults observed. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Nymphs ranged light to moderate on alfalfa and clovers in Calvert, Howard and Carroll Counties. (U. Md. Ent. Dept.). OHIO - Full hatch occurred throughout State. Early instars easily found on alfalfa, red clover and wild carrot near Medina, Medina County. Nymphal counts 3-4 per spittle mass in few instances. (Lyon). WISCONSIN - Spittle masses becoming noticeable in few alfalfa fields; ranged 1-5 per 10 stems in 10 most southwestern counties. Populations apparently somewhat heavier in Grant County, with counts as high as 26 per 10 stems. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Remains light in alfalfa and safflower in Graham County; 10-20 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 0-12 per 100 sweeps in alfalfa in Dona Ana County. (N.M. Coop. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - First specimen of season taken in a light trap at Urbana, March 27, and first specimens swept from alfalfa in Hardin and Johnson Counties on April 24. Populations in alfalfa vary 5-210 per 100 sweeps May 4-7, with heaviest populations in central and west districts. (Ill. Ins. Rpt.). NEBRASKA - Ranged 2-7 per 10 sweeps in alfalfa in Butler, Dixon and Saunders Counties. (Calkins). NORTH DAKOTA - Occasional specimen observed in southeast. (Frye). MISSOURI - Two to 7 per 100 sweeps in southeast. (Houser et al.).

A LEAFHOPPER (Empoasca sp.) - FLORIDA - Adults 43 and nymphs 31 per 50 sweeps of blue lupine at Gainesville, Alachua County. (Mead, Apr. 30).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - NEW YORK - Common in field May 1 at Rural Hill near Belleville and Woodville, Jefferson County. (N.Y. Wkly. Rpt.). MASSACHUSETTS - Ranged 1-14 per 100 sweeps on alfalfa in western area. (Shaw).

VARIEGATED CUTWORM (Peridroma saucia) - ILLINOIS - Larvae varied 0-30 per 100 sweeps in alfalfa in southern one-third of State. (Ill. Ins. Rpt.). MISSOURI - Averaged 5 per square foot (ranged 1-7) in southeast area alfalfa. (Houser, Thomas, Wood). TEXAS - Infestations continue heavy in Delta, Kaufman and Hunt County vetch. (Turney). Populations still high on vetch in Brazos County. (Randolph). ARIZONA - Moderate infestations damaging bluegrass lawns and ornamentals in Page, Coconino County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Continues to feed on vetch in Delta and Hunt Counties. (Turney). Ranged 3-10 per 5 sweeps in Brazos County. (Randolph). OKLAHOMA - Light, 1-3 per 10 sweeps, on alfalfa in north central area. (Okla. Coop. Sur.). MISSOURI - Light on alfalfa in southeast; 10-20 per 100 sweeps. (Houser, Thomas, Wood). WISCONSIN - Adults appearing in blacklight traps in Dane County and in Platteville, Grant County. (Wis. Ins. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Ranged 0-1 per linear foot of drill row in wheat in most northeastern area fields; 3-5 per linear foot in southern part of Washington County. Counts 2-5 per linear foot in area south of Burlington, Kit Carson County. (Jenkins). NORTH DAKOTA - Light to severe damage to winter wheat observed in Bowman County; up to 1 per linear foot in some fields. (Brandvik).

THRIPS - TEXAS - Very high counts of unspecified species present on blooming alfalfa in Brazos County. (Randolph). KANSAS - Immatures of unidentified species found in several wheat fields in north central district; less than 10 per foot of row. (Peters).

SLUGS - NEW YORK - Surprising amount of injury noted in alfalfa near Fishkill, Dutchess County. (N.Y. Wkly. Rpt., May 5).

EUROPEAN CORN BORER (Ostrinia nubilalis) - IOWA - Spring survey conducted April 24 - May 1. Borers averaged 0.77 per square yard of sampled oat ground or 3,724 per acre. Percent survival of borers 87; highest encountered in past 10 years. Survey conducted by USDA, State Department of Agriculture and Extension Service personnel. (Craig). MINNESOTA - Percent winter mortality by districts averaged 13 in southwest, 27 in west central, 9 in south central, 16 in southeast and 14 in central; state average 16 percent. At present, potentially damaging populations present in southwest, south central and west central districts. (Minn. Ins. Rpt.). WISCONSIN - Pupation began in warmer areas of State; a week earlier than in 1963. (Wis. Ins. Sur.). ILLINOIS - Pupation 4 percent in Urbana area. (Ill. Ins. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Damage to pastures, small grains and related crops continues over wide areas of north central and central sections. (Tex. Coop. Rpt.). OKLAHOMA - Active in small grains in Cotton County, southwest area. (Okla. Coop. Sur.). ARKANSAS - Surveys in wheat in Jefferson County, southeast area, negative. (Ark. Ins. Sur.). MISSOURI - Averaged 10-15 per square foot (ranged 1-24) in wheat fields in southeast. (Houser, Thomas, Wood). MARYLAND - Moderate but steady numbers of moths appeared for past 2 weeks at blacklight trap at Berlin, Worcester County. (U. Md., Ent. Dept.). DELAWARE - Few adults taken in blacklight trap on May 5, 6 and 7. (Burbutis).

CORN EARWORM (Heliothis zea) - FLORIDA - Moderately and generally infesting sweet corn at Homestead, Dade County. (Knowles, Apr. 27). ARKANSAS - Moths, up to 7 per 100 terminals, observed on corn in Bradley County, south central area. (Ark. Ins. Sur.). MISSOURI - Second instars averaged 2-3 per 100 sweeps in alfalfa in southeast. (Houser, Thomas, Wood). OKLAHOMA - Single specimen recovered in survey of alfalfa in Tonkawa area of Kay County, north central. (Okla. Coop. Sur.).

CUTWORMS - TEXAS - Light to moderate, localized populations of Agrotis sp. damaging grain sorghum in Guadalupe County. (New). MISSOURI - Agrotis ipsilon less than 1 per 100 corn plants in southeast area. (Houser, Thomas, Wood).

BROWN WHEAT MITE (Petrobia latens) - WYOMING - Light populations in Goshen and Platte County wheat; largest numbers found in areas east of Hawk Springs in Goshen County. (Marks). COLORADO - Numbers variable on wheat in Pueblo, Otero, Bent and Prowers Counties; 2-200 per linear foot. Field with high populations yellowing. (Schweissing). Counts 0-20 per linear foot of drill row in northeastern counties. (Jenkins). KANSAS - Populations declined in most southwestern areas due to natural mortality and local rains. Further damage not expected this late in season. (DePew). OKLAHOMA - Heavy in wheat (3,000 per linear foot) as late as April 30 in Seiling area of Dewey County, northwest. (Okla. Coop. Sur.).

WHEAT CURL MITE (Aceria tulipae) - COLORADO - Numerous in some areas south of Burlington, Kit Carson County, on volunteer wheat and trace numbers on winter wheat. (Jenkins).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy populations in Montague County damaging small grains. (Texas Coop. Rpt., Stafford). Heavy populations also reported on Brazos County grain sorghum. (Randolph). NEW MEXICO - Light, spotted infestations in many barley fields checked in Dona Ana County. (N.M. Coop. Rpt.). ARIZONA - Ranged 10-30 per leaf in barley in Graham County; early damage noticeable on foliage. (Ariz. Coop. Sur.). UTAH - Very light on barley in Washington County. (Knowlton).

GREENBUG (Schizaphis graminum) - TEXAS - Light, widespread infestations reported on small grains in Montague and Cooke Counties. (Texas Coop. Rpt., Stafford). KANSAS - Ranged 0-10 per foot of row in wheat in northeast and north central areas. (Peters). COLORADO - None observed in northeastern area wheat to May 7. (Jenkins). NEBRASKA - Counts -3 per 10 sweeps in wheat in south and southeast

areas. (Bergman). SOUTH DAKOTA - Thirty per 100 linear feet of row in oatfield in Clay County; thought to be newly arrived migrants judging by number of nymphs present. (Kieckhefer). Single specimens found in Charles Mix County. (Hintz). UTAH - Very light on small grains in Washington County. (Knowlton).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Populations increased slightly; averaged as high as 30 per 25 sweeps in small grains near Arena, Iowa County. (Wis. Ins. Sur.). NEBRASKA - Very light, 1-2 per 10 sweeps, in wheat in south and southeast areas. (Bergman). KANSAS - Ranged 0-10 per foot of row in wheat in northeast and north central districts. (Peters). COLORADO - Counts 0-1 per 100 wheat tillers in Washington County. (Jenkins). UTAH - Very light on small grains in Washington County. (Knowlton).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Light to moderate numbers reported from Garvin County, south central area, on corn and broomcorn. Also reported active on small grains in Mayes County, northeast. (Okla. Coop. Sur.). NEBRASKA - Adults ranged 1-4 per 10 sweeps in alfalfa, sweetclover and wheat in southeast area. (Bergman).

A SPITTLEBUG (Prosapia bicincta) - GEORGIA - First to second instars light on Bermuda grass in Cook and Tift Counties. (Byars).

RICE STINK BUG (Oebalus pugnax pugnax) - MISSISSIPPI - Active in wheat fields. (Bennett).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Trace to one adult per sweep found in rye in southeast. (Frye). NEBRASKA - Ranged 3-8 per 10 sweeps in wheat in south and southeast areas. (Bergman).

HESSIAN FLY (Phytophaga destructor) - OHIO - Empty puparia observed on volunteer wheat throughout northeast and central areas. (Lyon).

SEED-CORN MAGGOT (Hylemya platura) - WASHINGTON - Adults much more abundant than formerly at George, Grant County. Observed in grain fields following potatoes. Attracted to parts of fields being irrigated where eggs apparently being laid. (Landis).

WIREWORMS - NORTH CAROLINA - Melanotus communis found feeding on seeds and stems of 2-3 inch corn on 2 Camden County farms. Fifty acres replanted on one farm and more acreage may need replanting. Part of acreage on other farm replanted. Few specimens of Conoderus lividus also found on one farm. Wireworm damage to corn has not been reported at present time in nearby counties. (Tuten, Mount). WASHINGTON - Limonius sp. larvae spotty in wheat fields in College Place area of Walla Walla County. L. californicus damaging seed corn so severely in Toppenish area of Yakima County that replanting required. (Onsager).

CEREAL LEAF BEETLE (Oulema melanopa) - OHIO - A second aerial treatment scheduled May 13 on 4-square-mile area in Allen County, northwest area. (Porter).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Few adults observed in wheat and alfalfa in Riley County, northeast. (Peters).

A BILLBUG (Sphenophorus callosus) - GEORGIA - Moderate to heavy infestations in corn in Turner and Cook Counties. (Smith, Johnson).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Grubs showing in many lawns in Niagara County. (N.Y. Wkly. Rpt., May 5).

SUGARCANE BEETLE (Euetheola rugiceps) - ALABAMA - A 5-acre field of corn following pasture sod in Clarke County has damaging numbers of adults; about 3 per corn plant. (Lemons).

GARDEN SYMPHYLAN (Scutigerella immaculata) - IOWA - Ranged 0-13 per shovelful of soil in Scott and Clinton Counties. More reports of infestations occurring. Now known in 11 counties; serious problem wherever it occurs. (Iowa Ins. Inf., May 4).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - Active and numerous, clearing areas about its mounds, in Milford area of Beaver County and in Washington County. (Knowlton).

MORMON CRICKET (Anabrus simplex) - ARIZONA - Small populations emerged May 6 in and near Page, Coconino County; first report of season. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Averaged 10-20 per 100 sweeps on safflower in area of Graham County. (Ariz. Coop. Sur.).

FRUIT INSECTS

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Hatched in New Haven and Storrs; damaged buds easy to find on check trees. Unidentified leaf roller moths reported from Woodstock, New Haven and Storrs. (Savos, May 6). MISSOURI - Not troublesome to date. (Wkly. Rpt. Fr. Grs., May 6). IDAHO - Approximately 50 percent hatched with some first and second instars feeding on developing apple buds in Moscow area. (Manis). CALIFORNIA - Light on prune trees in Gridley, Butte County. (Cal. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Adults active; egg masses expected soon. (Savos, May 6). NEW YORK - Adults found in Clinton County in Ticonderoga area April 27 and at Peru April 29. First adults in Wayne County noted April 25. In flight in Monroe County April 27. (N.Y. Wkly. Rpt.). PENNSYLVANIA - Eggs hatching on unsprayed apple orchards in south central area; difficult to find in sprayed orchards. (Pepper). MARYLAND - Eggs hatched May 5 at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - No hatching observed in Elkhart County. (Bram). MISSOURI - Not troublesome in State thus far. (Wkly. Rpt. Fr. Grs., May 6). KANSAS - Egg masses not so numerous as in 1963; only occasional mass found on trees (40-50 readily found in 1963). (Eshbaugh, Apr. 30).

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - First pupae under tree bands at Middle Hope, Orange County, April 27, at New Platz, Ulster County, and Lagrangeville, Dutchess County, April 30. Flight anticipated about May 20. (N.Y. Wkly. Rpt.). MARYLAND - Pupation about 5 percent completed in cages at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - No adults emerged at traps at Lafayette, Tippecanoe County. (Bram).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - PENNSYLVANIA - Two-inch webs noted at Valley Forge, Montgomery County; light on cherry trees. (Sleesman, Apr. 25). OHIO - A few apple trees infested in southern Ashland County; heaviest larval populations occurred on wild cherry trees. (Lyon).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - IDAHO - Larvae abundant and severely damaging unsprayed apple buds in Moscow area; most in second instar. (Manis). CONNECTICUT - Larvae and larval injury easily found on unsprayed check trees in New Haven and Storrs. (Savos, May 6). VERMONT - Active in Addison County. (MacCollom).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Larvae boring into green apricot fruits at Wawawai, Whitman County. (Johansen). KANSAS - Injury to peaches noted in Doniphan County. (Eshbaugh, Apr. 30).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW JERSEY - Active in peach orchards. (Ins.-Dis. Newsltr.).

GREEN FRUITWORM (Lithophane antennata) - VERMONT - Active in Addison County. (MacCollom).

PLUM CURCULIO (Conotrachelus nenuphar) - MISSOURI - McIntosh apples growing in extremely favorable area for this insect near Kansas City reported injured; generally not noticeable in other areas of State. Some potentially harmful populations present in southeast area on early peaches apparently failed to develop. (Wkly. Rpt. Fr. Grs., May 6). WISCONSIN - Adults appearing in Madison area, Dane County. (Wis. Ins. Sur.). ALABAMA - Larvae numerous in unsprayed peaches in Chilton County; adults less numerous. (Helms). PENNSYLVANIA - Few adults collected from peaches next to woods and hedgerows in south central area. (Pepper). NEW JERSEY - Very active in peach orchards. (Ins.-Dis. Newsltr.). DELAWARE - First feeding punctures noted in very young peaches locally in Kent County. (MacCreary).

CLICK BEETLES - NEW YORK - Found on young trees in Clinton County April 30. (N.Y. Wkly. Rpt., May 5).

APPLE APHID (Aphis pomi) - NEW YORK - Hatch about complete in Clinton County. (N.Y. Wkly. Rpt., May 5). CONNECTICUT - Low abundance throughout State; in third and fourth instars in New Haven. (Savos, May 6).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - NEW YORK - Hatch about complete in Clinton County. (N.Y. Wkly. Rpt., May 5). CONNECTICUT - Low abundance throughout State. (Savos, May 6).

ROSY APPLE APHID (Anuraphis rosea) - PENNSYLVANIA - Producing young and curling leaves in apple orchards where not controlled in south central area. (Pepper). NEW YORK - First specimens found April 27 in Clinton County. Abundant in Oswego County. First specimens found in southern Wayne County April 24; easily found throughout county by April 27. Noted in Monroe County April 27. (N.Y. Wkly. Rpt.). CONNECTICUT - Low abundance throughout State. (Savos, May 6). UTAH - Less abundant than in April 1963 in Washington County apple orchards. (Knowlton).

BLACK PEACH APHID (Anuraphis persicaeniger) - OREGON - Infestation in peach orchard in Marion County possibly this species. (Stephenson). PENNSYLVANIA - On roots of young peach trees, keeping trees from growing in York County. (Pepper).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARIZONA - Increasing on apples and pyracantha in Graham County. (Ariz. Coop. Sur.).

APHIDS - MISSOURI - Generally scarce to nonexistent in apple orchards statewide; unusual situation. (Wkly. Rpt. Fr. Grs., May 6). CALIFORNIA - Anuraphis helichrysi locally heavy on dooryard plum trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Egg hatch began May 8 in western area. (Wave). CONNECTICUT - Hatched in New Haven and hatch just beginning at Storrs. Additional eggs laid at Storrs. (Savos, May 6). NEW YORK - Hatch first observed in western area on pears April 27. First egg laying probably occurred April 7. (N.Y. Wkly. Rpt., May 5). WASHINGTON - Low populations on pears; nymphs just appearing in Yakima Valley. (Capizzi).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSOURI - Considerable number present in peach orchard in Jackson County. (Wkly. Rpt. Fr. Grs., May 6). PENNSYLVANIA - Easily found in apple and peach orchards in south central area. (Pepper). NEW YORK - Adults found in Ticonderoga area April 27 and Peru April 28 in Clinton County. Noted on apples in Niagara County April 27. (N.Y. Wkly. Rpt.). CONNECTICUT - Becoming easier to find in Storrs. (Savos, May 6). MASSACHUSETTS - Actively feeding on apple and peach flower buds in unprotected orchards in western area since May 3. (Wave). VERMONT - Observed in Burlington area, Chittenden County, May 3. Active in Addison County. (MacCollom).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - NORTH CAROLINA - Infested mulberry in Alamance County. (Robertson).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - CALIFORNIA - Infesting pear trees in Bangor, Butte County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - MISSOURI - Overwintering eggs heavy in most orchards of State but nearly all growers attained good to excelent control. One orchard near Boonville averaged 1 per leaf in center of tree but surrounding trees free of mites. (Wkly. Rpt. Fr. Grs., May 6). INDIANA - Eggs hatched and nymphs feeding on unsprayed apple trees in Elkhart County area, north central. Ranged to highs of 7 per leaf. (Bram). MARYLAND - Buildup continues on unsprayed apple trees in Hancock area, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - Eggs 75 percent hatched in south central area on apples and peaches. (Pepper). NEW YORK - Hatched in Ulster County by April 28 on sweet cherries; some controls started. No egg hatch noted in Monroe County. (N.Y. Wkly. Rpt., May 5). CONNECTICUT - Hatching began about May 2 at Storrs; previously reported hatching in New Haven. Early control recommended. (Savos). MASSACHUSETTS - Egg hatch began on apple on May 7 in western area; young nymphs now on foliage. (Wave). VERMONT - Hatch started in most areas May 7 and 8. Nymphs easily found on unsprayed blocks. (MacCollom).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - In tops of fruit trees; first generation eggs now hatching at Zillah, Yakima County. (Capizzi). PENNSYLVANIA - Adults and some eggs noted on apples in south central area. (Pepper).

SPIDER MITES - MARYLAND - Tetranychus sp. increasing on apples in Hancock area, Washington County. (U. Md., Ent. Dept.).

PECAN NUT CASEBEARER (Acrobasis caryae) - GEORGIA - First adults caught in light trap at Albany. (Tedders, May 2). TEXAS - Heavy in Haskell County. (Martin). OKLAHOMA - Moderate in Comanche County (south central); feeding on terminals in Garvin and Marshall Counties. (Okla. Coop. Sur.).

A LEAF ROLLER MOTH (Archips rosana) - OREGON - Populations in Willamette Valley filbert orchards vary 0-5 larvae per tip. Most orchards surveyed appear lightly infested. (Larson).

A GEOMETRID MOTH (Operophtera occidentalis) - OREGON - Small numbers, probably this species, attacking filbert leaves in Marion County. (Stephenson).

A LEAF BEETLE (Syneta albida) - OREGON - Attacking terminal growths in filbert orchards in Willamette Valley. Damage quite noticeable but not reached economic proportions. (Stephenson, Goeden).

WALNUT BLISTER MITE (Aceria erinea) - CALIFORNIA - Adults light on walnuts in San Pablo, Contra Costa County. (Cal. Coop. Rpt.).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Medium on orange trees and invading fruits in Courtland, Sacramento County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Increases on citrus in Yuma County may become problem in citrus nurseries. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - CALIFORNIA - Heavy on citrus plantings in Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Infestations appear reduced by inclement weather in Yuma County. (Ariz. Coop. Sur.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Locally heavy on citrus trees in Fair Oaks, Sacramento County, and medium in Chico, Butte County. (Cal. Coop. Rpt.).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Moderate on leaves of Citrus sp. at Dade City, Pasco County. (Williams, Apr. 27).

Citrus Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 43 percent of groves (norm 59 percent); 26 percent economic (norm 32 percent). Population below average and still declining in north, central and east districts. Although increase expected, heavy infestations will not be common in May. Highest districts west and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 49 percent of groves (norm 27 percent); 24 percent economic (norm 11 percent). Population above average and increasing on new leaves. Further increase expected in most districts. Highest districts central and east. Scattered groves will have important infestations. CITRUS RED MITE (Panonychus citri) infested 55 percent of groves (norm 60 percent); 20 percent economic (norm 34 percent). Population below average. Building up on new leaves but will not increase strongly until late May. Heavy infestations expected in 5 percent of groves. Highest districts central and north. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 3 percent of groves (norm 15 percent); 1 percent economic (norm 2 percent). Although statewide population near record low reported in 1963, a few infestations have been severe enough to cause leaf drop. Heavy infestations in scattered groves may be expected through May. PURPLE SCALE (Lepidosaphes beckii) infested 86 percent of groves (norm 84 per cent); 7 percent economic (norm 17 percent). Highest districts central, south and east. No severe infestations expected. GLOVER SCALE (L. gloverii) infested 74 percent of groves (norm 28 percent); 26 percent economic (norm 1 percent). Highest districts south and east. This scale insect continues at record high level. Scattered and spotty heavy infestations expected. CHAFF SCALE (Parlatoria pergandii) infested 86 percent of groves (norm 41 percent); 24 percent economic (norm 1 percent). Highest districts east, central and south. This scale insect is near record high level and little change is indicated. YELLOW SCALE (Aonidiella citrina) infested 52 percent of groves (norm 13 percent); 12 percent economic (norm 1 percent). Highest districts central and south; little change expected. BLACK SCALE (Saissetia oleae) infested 13 percent of groves (norm 17 percent); 6 percent economic (norm 4 percent). Highest districts east and south. Increase expected. MEALYBUG populations below average on statewide basis, but scattered groves show important buildup on new fruit. WHITEFLY eggs are at peak hatching period; larval populations above average and increasing. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Light to medium on tip ends of grape runners in Graham County. (Ariz. Coop. Sur.).

A THRIPS (Drepanothrips reuteri) - CALIFORNIA - Adults heavy in grape plantings in Lodi, San Joaquin County. (Cal. Coop. Rpt.).

MEALYBUGS - MISSOURI - Occasional specimen reported in vineyard in Rosati area; careful checking of vines for early infestations urged. (Wkly. Rpt. Fr. Grs., May 6).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Heavy on grapevines in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Growers report numerous adults during spring plowing in Newport area, Newport County. (Mathewson, Peabody). NEW JERSEY - Now active; controls recommended. (Ins.-Dis. Newsltr.). MARYLAND - Mating adults noted on young potato plants in several

gardens in Calvert and Prince Georges Counties. These are the first of season. (U. Md., Ent. Dept.). GEORGIA - Heavy on commercial tomato plants in Turner County. Light on tomato plants in Cook County. (Ratcliffe, Johnson). Moderate on potatoes in Tift County. (Drexler). KANSAS - Few adults observed on ground in field of alfalfa in Clay County. (Peters).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - First adults of season found on potatoes in New Castle and Kent Counties; 1-2 per young plant in most fields causing only light feeding injury. (Burbutis).

POTATO APHID (Macrosiphum euphorbiae) - MARYLAND - Few first of season adults noted on potatoes at Prince Frederick, Calvert County. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Continues serious problem to potato growers in Maricopa County. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Egg masses found on potatoes April 23; 7 additional egg masses found on 40 plants in one field week of April 26. (Tuten).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy on cabbage in Turner County. (Johnson). FLORIDA - Caused light to heavy damage to 63.5 percent of cabbage plants at Sanford, Seminole County. (Desin). ALABAMA - Few second and third instars noted on cabbage in Dallas and Tuscaloosa Counties. (Cooper et al.). NEW MEXICO - Eggs noted in a few lettuce fields checked. (N.M. Coop. Rpt.).

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Larvae light with a few pupae on cabbage in home garden in Tuscaloosa County. Cabbage plants for sale in seed store infested with larvae in Cullman County. (Cooper et al.). UTAH - Larvae moderately numerous on mustards (Sophia spp.) in alfalfa fields in Washington and southern Kane Counties. (Knowlton).

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - Caused light to heavy damage to 63.5 percent of cabbage plants at Sanford, Seminole County. (Desin).

IMPORTED CABBAGEWORM (Pieris rapae) - MISSOURI - Larvae feeding on cabbage in Boone County. (Brown).

CUTWORMS - SOUTH CAROLINA - Causing serious damage to spring cabbage in Charleston area, Charleston County; not considered serious in Beaufort area, Beaufort County. (Nettles et al., May 5). GEORGIA - Caused serious damage to newly set cabbage plants in Spalding County. (Dupree).

CABBAGE MAGGOT (Hylemya brassicae) - VERMONT - Adults becoming active; egg laying on cole crops expected this week. (MacCollom). MASSACHUSETTS - First eggs observed at Waltham, Middlesex County, May 5. (Whitcomb). First eggs noted May 7 in Hampden and Hampshire Counties; oviposition probably earlier since nearly all plants in one field had 2-7 eggs. (Wave). NEW JERSEY - Two adults recovered in trap at Cedarville on May 7; none on May 4. (Ins.-Dis. Newsltr.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light damage to 22.5 percent of cabbage plants at Sanford, Seminole County. (Desin).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - This and species near this species light on Raphanus sp. flowers. Ceutorhynchus sp. light on Brassica nigra plants in Sonora, Tuolumne County. (Cal. Coop. Rpt.).

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Caused light damage to 2.5 percent of cabbage plants at Sanford, Seminole County. (Desin).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Adults emerged and present on beans in Charleston area, Charleston County. (Cuthbert, May 5). GEORGIA - Light to moderate on snap beans and pole beans in south central area. (Johnson). ALABAMA - Overwintered adults feeding and laying eggs on beans and peas in home gardens over entire State; 1-4 adults not uncommon per 18-inch hill of 2 to 5-leaf plants. Not much of a pest in 1963, but appeared early this year in great numbers. Adults taken in woods trash samples in Henry, Dallas, Tuscaloosa and Morgan Counties in March. Especially noticeable on young beans at early period in Chilton County. (Helms et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Apparently overwintered in large numbers. Beans and peas in 2 to 5-leaf stage being destroyed in many home gardens examined in Houston, Henry, Tuscaloosa and Morgan Counties. One home garden in Morgan county with 5-20 adults per 18-inch bunch of 3-leaf beans. (McQueen).

PEA APHID (Acyrthosiphon pisum) - DELAWARE - Remains low in most peas throughout State except in some advanced fields where counts ranged 300-400 per 100 sweeps. (Burbutis). MARYLAND - Winged forms noted on garden peas in Barstow, Calvert County, May 7. (U. Md., Ent. Dept.). OREGON - Surveys in 5 pea fields of northern Umatilla County show 3-4 (50 percent alates) per 8-inch pea plant. (Halfhill). WASHINGTON - All stages now on peas (3 percent bloom); 8 percent alates. Range 8-10 per plant, mostly first and second instars at Gardena Bench, Lowden area, Walla Walla County. (Featherstone, Halfhill).

COWPEA APHID (Aphis craccivora) - ALABAMA - Heavy on all southern peas examined in Dallas, Tuscaloosa and Morgan Counties; 5-25 crowded on buds of 2-leaf plants. (Cooper et al.).

MARCH FLIES - WASHINGTON - Adults abundant in some pea and grain fields in Walla Walla, Walla Walla County; 25-30 per sweep. (Landis).

PALE-STRIPED FLEA BEETLE (Systena blanda) - COLORADO - Averaged 5 larvae per beet seedling in 15-acre planting in Larimer County; requires replanting. Det. by T. O. Thatcher. (Olsen).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Populations well above normal in Santa Clara area, Washington County, on wild mustards. (Knowlton).

LYGUS BUGS - UTAH - Light on sugar beet seed fields in Washington County. (Knowlton).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Very abundant on sugar beet seed fields in Washington County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - First nymphs of season present but scarce on commercial spinach locally in Kent County. (Burbutis).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Causing considerable damage to cucumbers in Pender County. (Fedoronko).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - WISCONSIN - Adults appeared at Dane County blacklight traps. (Wis. Ins. Sur.).

ASPARAGUS BEETLES - NEW JERSEY - Very active and laying eggs during warm, sunny weather. Controls good. (Ins.-Dis. Newsltr.). MARYLAND - Crioceris asparagi adults feeding on new asparagus spears at College Park, Prince Georges County. (U. Md., Ent. Dept.).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Adults continue to appear in traps in southern area; 94 specimens collected May 4 and 193 on May 7 at Cedarville. (Ins.-Dis. Newsltr.).

ONION ROOT MITES - NEW YORK - Observed in 3 fields in Orange County with severe damage in 2 fields evident on April 24. (N.Y. Wkly. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Few noted on green onions at Washington, Washington County. (Knowlton).

THRIPS - NEW MEXICO - Remain about same as past 2 weeks on onions throughout Dona Ana County; counts in fields checked ranged 2-10 per plant where infestations found. Some fields appeared free of this pest. (N.M. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Large numbers migrated from southern area during past few days. (Minn. Ins. Rpt.).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Occasional larva noted in lettuce fields checked. (N.M. Coop. Rpt.).

CARROT BEETLE (Bothynus gibbosus) - WISCONSIN - Adults appeared at Dane County blacklight traps. (Wis. Ins. Sur.).

RHUBARB CURCULIO (Lixus concavus) - OHIO - Adults noted on rhubarb at Apple Creek, Wayne County. (Trapp).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW YORK - Adults observed in Monroe County May 3. NEW JERSEY - Adults active in Atlantic, Cumberland and Salem Counties. One egg per 5 leaves found in Hammonton strawberry field. (Ins.-Dis. Newsltr.). WASHINGTON - Adults actively flying during periods of good weather at Pullman, Whitman County. (Johansen).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Building up in Marion County strawberry fields; 5-10 per new leaf noted in some fields. (Stephenson).

MITES - NEW JERSEY - Increasing slowly on strawberries but generally quite low. (Ins.-Dis. Newsltr).

FLEA BEETLES - NEW YORK - Damaging cole crops in Chemung County. (N.Y. Wkly. Rpt., May 5). DELAWARE - Phyllotreta cruciferae adults very numerous on young cabbage in small planting in Sussex County. (Burbutis). MARYLAND - Epitrix spp., mostly E. hirtipennis, causing noticeable injury to young potato plants in several gardens in Calvert and Prince Georges Counties; these are first reports of season. (U. Md., Ent. Dept.). GEORGIA - Unspecified species heavy on eggplants in Tifton area, Tiff County. (Ratcliffe). CALIFORNIA - E. hirtipennis medium on potato plantings in Valley Center, San Diego County; causing damage. (Cal. Coop. Rpt.).

WIREWORMS - GEORGIA - Larvae of Conoderus sp. easily found in field planted to sweetpotatoes in 1963 in Lee County. (Dupree). OHIO - Undetermined species attacking tomatoes in Washington County. (Gehres). WASHINGTON - Larvae of Limonius sp. severe in spots in cabbage at College Place, Walla Walla County. Ctenicera pruinina light on potato seed pieces at Royal City, Grant County; some entirely destroyed by 2-3 larvae. (Onsager).

A SCARAB (Aphodius distinctus) - WASHINGTON - Adults numerous; occasional larva of unspecified species in garden plot at Walla Walla County. (Onsager).

APHIDS - NEW JERSEY - Continue buildup on strawberries but not yet in winged stage. New beds should receive controls to prevent virus transmission by winged adults. (Ins.-Dis. Newsltr.). NEW MEXICO - Light on cabbage in southern Dona Ana County. (N.M. Coop. Rpt.). CALIFORNIA - Myzus persicae, Acyrthosiphon pelargonii and Rhopalosiphum fitchii-padi complex occurring on tomato plantings locally in Reedley, Fresno County; all light. (Cal. Coop. Rpt.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Present and causing slight damage to radishes, lettuce, beans and potatoes in gardens checked in Calvert County. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Locally heavy and damaging vegetable crops in Yuma County. (Ariz. Coop. Sur.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco in southeast and south central areas. (Allison, Johnson). MARYLAND - Adults causing noticeable injury to border plants in several tobacco beds in Calvert County; first report of season. (U. Md., Ent. Dept.).

GREEN JUNE BEETLE (Cotinus nitida) - MARYLAND - Grubs reported infesting tobacco bed in Charles County. (U. Md., Ent. Dept.).

WIREWORMS - SOUTH CAROLINA - Damage started April 27; probably will continue until pupation. (Nettles et al.). GEORGIA - Conoderus sp. heavy on tobacco in Berrien County. (Wood).

A BUDWORM (Heliothis sp.) - GEORGIA - Light to moderate on tobacco in south central area. (Johnson).

CUTWORMS - MARYLAND - Injuring young plants in several tobacco beds in Charles County. (U. Md., Ent. Dept.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Present and causing light injury in most tobacco beds checked in Calvert and Prince Georges Counties. (U. Md., Ent. Dept.).

ADDITIONAL NOTES

PENNSYLVANIA - In south central area, adults of ALFALFA WEEVIL (Hypera postica) plentiful on alfalfa; all size larvae noted. PEA APHID (Acyrthosiphon pisum) fairly abundant on alfalfa. SPITTLEBUGS fairly plentiful on alfalfa and clover, with more eggs to hatch, and TARNISHED PLANT BUG (Lygus lineolaris) fairly abundant on alfalfa. (Pepper).

VERMONT - First MEADOW SPITTLEBUG (Philaenus spumarius) hatch observed May 8 in Addison. EASTERN TENT CATERPILLAR (Malacosoma americanum) larvae over 0.5 inch long in most areas. Heavier infestations than past several years. GYPSY MOTH (Porthetria dispar) hatch observed in Burlington May 4 and in Sangate May 6. (MacCollom).

INDIANA - ENGLISH GRAIN APHID (Macrosiphum avenae) infestations extremely light in wheat fields of Knox County; averaged 7 per 25 sweeps. Nymphs of MEADOW SPITTLEBUG hatched in Adams County area; averaged 4 per 10 stems in red clover and alfalfa, all very early instars. CLOVER LEAF WEEVIL (Hypera punctata) larval counts averaged 2 per plant crown in red clover in Adams County area; 30 percent of larvae show evidence of fungus disease. No pupation observed. PALES WEEVIL (Hylobius pales) overwintered adults feeding on pine in St. Joseph County; 200-500 trees affected in one planting. EASTERN TENT CATERPILLAR tents abundant in wild cherry, plum and some home orchards in southern part of State. In southern counties, larvae finished feeding and now migrating across roads seeking sites for pupation. Abundant in trees in Adams County; larvae about 0.5 inch long and defoliating yard trees. (Bram).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - To May 8, only 3 weevils collected on trap plants in delta area: 1 male on April 15, 1 female on April 29 and 1 female on May 4. Total of 40 live weevils removed from screen cages in which they were rehibernated after taking from ground trash last fall. Of these, 27 were males and 13 females. (Pfrimmer et al.). ALABAMA - Total of 600 linear feet of row examined on each of 10 farms in 3 widely scattered counties. Live weevils averaged 5 and 6 per acre in Dallas and Tuscaloosa Counties; none found in Morgan County. (McQueen).

THRIPS - ARIZONA - Frankliniella spp. increasing rapidly in cotton fields in Yuma, Graham, Maricopa, Pinal and Pima Counties. Heaviest infestations in fields planted with untreated seed. (Ariz. Coop. Sur.). NEW MEXICO - Very light in cotton fields so far this season. (N.M. Coop. Rpt.). TEXAS - Infestations of several species generally light to moderate over State, with high infestations reported from central blacklands and upper coastal areas. (Texas Coop. Rpt.). In McLennan and Falls Counties, infestations in 37 untreated fields heavy in 3, medium in 11, and light in 19; light in 4 of 7 treated fields checked. (Cowan et al.). MISSISSIPPI - Light infestations found in 23 of 43 fields sampled in delta area; averaged 0.1 per plant in infested fields. (Pfrimmer et al.). GEORGIA - Light to moderate infestations of unspecified species on cotton in south central and southwestern areas. (Johnson).

APHIDS - MISSISSIPPI - Of 43 fields sampled in delta area, none found in 3 fields, light in 34 fields, medium in 5 fields and heavy in 1 field. Average number per plant in infested fields 0.9. (Pfrimmer et al.). ALABAMA - Medium locally on cotton in Dallas County; heavy locally in Tuscaloosa County. (McQueen).

COTTON APHID (Aphis gossypii) - ARIZONA - Increasing in Graham and Maricopa Counties, but continues light in Yuma County. (Ariz. Coop. Sur.). TEXAS - Heavy infestations reported from a wide area of central blacklands. (Texas Coop. Rpt.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations have become general and widespread in Rio Grande Valley; counts light to heavy. (Texas Coop. Rpt., Deer). In McLennan and Falls Counties, averaged 3.9 per 100 linear feet of row in untreated fields and averaged 2.4 in treated fields. (Cowan et al.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Increasing rapidly in cotton fields in Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Heavy, local infestations reported from Calhoun County. (Cook). Some cotton near Victoria being destroyed. (Texas Coop. Rpt., Deer).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence of moths in test cages in Safford, Graham County, continues to be light. (Ariz. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - ALABAMA - One to two adults each night being observed around a light in Lee County area. (McQueen).

CUTWORMS - NEW MEXICO - Reported destroying stand of seedling cotton locally in southern Dona Ana County. (N.M. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya platura) - ARIZONA - Moderate populations damaging cotton plants in Marana and Avra Valley areas of Pima County; replanting necessary in one field. (Ariz. Coop. Sur.).

A SPRINGTAIL (Entomobrya sp., probably unostrigata) - TEXAS - Moderate to heavy, local infestations on cotton in Knox County. (Doby).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

LARCH CASEBEARER (Coleophora laricella) - VERMONT - Of 70,000 specimens collected from tamarisk in Pittsford, Mills County, and Clarendon, Rutland County, 78 and 52 percent parasitized, respectively. (MacCollom). NEW YORK - Larvae actively feeding on newly emerged larch foliage. Moderate on roadside trees on Arnot Forest, Tompkins County, on April 30. (N.Y. Wkly. Rpt.).

HEMLOCK LOOPER (Lambdina fiscellaria) - PENNSYLVANIA - Medium infestation of small larvae noted in woods south of Johnstown, Somerset County, April 23. (Yackley).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEBRASKA - Damaging spruce in Hall County. (Bergman). MINNESOTA - Larvae active. (Minn. Ins. Rpt.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Light damage by first-generation larvae appearing in some plantings. To May 1, infestations apparently light. Second generation should appear about first week of June. (Ark. For. Pest Rpt., May).

PALES WEEVIL (Hylobius pales) - ARKANSAS - Adults of this and a pitch-eating species active. Light damage reported from one locality. In some areas in south central section of State, adult feeding on limbs of large trees noted. (Ark. For. Pest Rpt., May).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW YORK - Percentage of weeviled leaders in white pine plantation near Ithaca, Tompkins County, lower than in 1962. Less than 1 percent of trees showed damage in 1963 compared with nearly 5 percent in 1962, although sprays not applied. (N.Y. Wkly. Rpt., May 4).

BARK BEETLES - ARKANSAS - Increased activity of Ips spp. and Dendroctonus terebrans prevalent; infestations noticeable in single trees or small groups. Rainfall received across pine-growing areas should relieve problem to some extent. There are still problem areas to be watched, especially on poor sites or areas injured from recent harvest operations. Some stands too thick will also be in danger until some vigorous growth regained, bringing about higher oleoresin pressure. Salvage operations underway in most areas; will continue very practical operation to aid in reduction of spread of these pests. (Ark. For. Pest. Rpt., May).

WHITE-PINE APHID (Cinara strobi) - NEW YORK - Many eggs observed on the Arnot Forest near Ithaca, Tompkins County; not hatched as of May 1. (N.Y. Wkly. Rpt.). NEBRASKA - Present in white pine in Richardson County. (Bergman).

EASTERN SPRUCE GALL APHID (Chermes abietis) - NEW YORK - Serious on Christmas trees near Jamestown, Chautauqua County. Nearly full grown on white spruce buds in Erie County. (N.Y. Wkly. Rpt., May 4).

A GALL APHID (Pineus floccus) - NEW YORK - Serious on red spruce Christmas tree plantation near Little Genessee, Allegany County. (N.Y. Wkly. Rpt., May 4).

CONIFER APHIDS - NEW YORK - Schizolachnus piniradiatae hatching on red pines in Ithaca, Tompkins County. Unspecified black species attacking newly emerged leaves of larch. (N.Y. Wkly. Rpt., May 4).

A PINE SCALE (Physokermes insignicola) - CALIFORNIA - Medium on Monterey pines in the Presidio in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

CONIFER SAWFLIES (Neodiprion spp.) - MARYLAND - Second-stage larvae of N. pratti pratti infesting Virginia pine at Indian Head, Charles County. (U. Md., Ent. Dept.). OHIO - N. sertifer ranged moderate to heavy on several red pine plantings throughout northeast; economic damage expected this season. (Lyon). ARKANSAS - Infestations of N. taedae linearis heavier than any time since 1946-47 outbreak.

Area involved includes eastern edge of Ouachita County, all of Calhoun County, southwestern edge of Cleveland County, southern half of Bradley County, western Ashley County and eastern and northern portions of Union County. Ground observations showed parasitic wasps light to heavy in infested areas; disease organisms also recovered from specimens collected in field. Infestations of unspecified sawflies now active in Washington-Benton County area. (Ark. For. Pest. Rpt., May).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KANSAS - Webs frequently noted in trees in Pottawatomie County, northeast. (Smith). WISCONSIN - Tents becoming more conspicuous. Populations appear about normal in southwest area. (Wis. Ins. Sur.). ILLINOIS - Larvae reaching full growth in southern area; leaving nests in search of pupation sites. (Ill. Ins. Rpt.). OHIO - Larvae building up to conspicuous numbers on wild cherry in central and northeast areas. (Lyon). MARYLAND - Heavily defoliated wild cherries along roadsides and highways in Anne Arundel, Calvert and Prince Georges Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Nests observed on various hosts along Skuylkill Expressway in Philadelphia and Montgomery Counties April 20; hatched about April 17. (Cole). First webs noted in southern Westmoreland County April 23 (Yackley) and at Middletown, Dauphin County, May 2 on crab apple (Quackenbush). Heavy on wild cherry along U.S. Highway 422-322, about 2 miles east of Harrisburg, Dauphin County; webs 4 inches in diameter. (Sleesman). RHODE ISLAND - First hatch observed April 20 in Lincoln, Providence County. Widespread throughout State, but especially heavy in Providence and Kent Counties. Indications are that pest will be heavier than usual. (Veilleux, Mathewson, King. Buonaiuto). VERMONT - Hatch noted in Chittendon County April 29 and in Windham County April 28. (MacCollom).

TENT CATERPILLARS - NEW YORK - Eggs of unspecified species hatched; first instars beginning webs. Larvae about one-eighth inch long in Chemung County and beginning webs in crab apples. Hatched in Queens County April 24 and in Farmingdale, Nassau County, April 26. (N.Y. Wkly. Rpt., May 4). CALIFORNIA - Malacosoma constrictum larvae medium on madrone trees in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Heavy on elm and hackberry in Riley County, northeast. (Mills). NEBRASKA - Larvae damaging locust trees in Waverly, Lancaster County. (Bergman). WISCONSIN - Very young larvae noted feeding heavily on elms in Mazomanie area, Dane County. Larvae in same stage in Galesville area, Trempealeau County. (Wis. Ins. Sur.). OHIO - Few larvae observed feeding on elms near Columbus, Franklin County (central). (Lyon).

CANKERWORMS - MINNESOTA - Larvae in first and second stages. Populations will be high in areas where problems existed last spring; there will be some additional spread. (Minn. Ins. Rpt.). IOWA - No evidence of feeding seen in Scott and Clinton Counties; cool weather apparently delayed hatch. Recently hatched specimens found April 30 at Emerson, Mills County. (Iowa Ins. Inf., May 4).

GYPSY MOTH (Porthetria dispar) - VERMONT - Egg masses collected in Rutland, Rutland County, April 23; hatched within week indoors. (MacCollom). CONNECTICUT - Egg masses began hatching about April 28 at Haddam, Middlesex County. (Savos). RHODE ISLAND - First hatch of season observed May 6 at Cranston, Providence County. (Lewis, Veilleux). NEW YORK - Egg masses from Montgomery County on maple and apple trees hatched within 2 days after collection. (N.Y. Wkly. Rpt., May 4). PENNSYLVANIA - Hatching underway in infested area in northern portion of Northampton County. Area included in spray program to be conducted May 18 to June 10; approximately 18,000 acres involved in spray program in 6 areas of Pike, Northampton and Monroe Counties. (Jeffery).

AN OLETHREUTID MOTH (Grapholitha eclipsana) - PENNSYLVANIA - Adults very abundant about maples and other trees in Lewisberry, York County, April 30. (Walker).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Adults active in southern Washoe County, but elm foliage sparse and late due to inclement weather. (Coop. Rpt.). OKLAHOMA - Egg laying continues throughout State; first-generation larvae active in Payne County, north central. (Okla. Coop. Sur.). ARKANSAS - Adults very active throughout Chinese elm growing areas. These shade trees will be seriously affected if conditions favorable for beetle development continue. First-generation larvae expected to begin feeding at any time. Control of this generation will greatly reduce subsequent infestations. (Ark. For. Pest Rpt., May). KANSAS - Several reports of overwintering adults active in houses in Finney County, southwest. (DePew). NEBRASKA - Adult activity common in Burt County. (Roselle). OHIO - Adults and freshly laid eggs observed on elm in Columbus, Franklin County, central area; 20-30 eggs per cluster. (Davidson, Lyon). RHODE ISLAND - Hibernating beetles periodically reported in homes throughout State. Reports increasing since late April. (Mathewson, Veilleux, Buonaiuto).

LOCUST LEAF MINER (Xenochalepus dorsalis) - OHIO - Adults active on elm and apple at Columbus, Franklin County (central); no damage noted. (Lyon).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OHIO - Few active adults noted in bark of dead elms near Mifflin, Ashland County (north central); many elms dead in same area. (Lyon).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - MARYLAND - Causing leaf drop on Carolina poplar at Arbutus, Baltimore County, April 23. (U. Md., Ent. Dept.).

GIANT BARK APHID (Longistigma caryae) - MISSISSIPPI - Reported from a number of areas. (Bennett, May 6). SOUTH CAROLINA - Numerous on sycamore in York County. (Nettles et al.).

BIRCH APHIDS - NEW YORK - Unspecified species about half grown and feeding in large numbers on opening buds. Large numbers also noted in Nassau County and causing some leaf curl. (N.Y. Wkly. Rpt., May 4). WISCONSIN - Euceraphis betulae very common on birch in Madison area, Dane County. (Wis. Ins. Sur.).

A TREEHOPPER (Platycotis sp.) - NORTH CAROLINA - Nymphs and few callow adults noted on oaks at a Duplin County location. (Fedoronko).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - TEXAS - Heavy locally on maples in Harris County. (Newton). OHIO - Infesting red maple in Licking County (central). (Walker, Porter).

EUROPEAN ELM SCALE (Gossyparia spuria) - IOWA - Light on elms in eastern area; now almost 0.25 inch in diameter; controls recommended in late June or early July. (Iowa Ins. Inf., May 4).

A GALL MIDGE (Dasyneura communis) - ARKANSAS - Observed on maple in several areas of northern part of State. (Ark. Ins. Sur.).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Adults present on birch leaves in Nassau County. (N.Y. Wkly. Rpt., May 4). NEW JERSEY - Adults active on birch. (Ins.-Dis. Newsltr.). CONNECTICUT - Adults active and laying eggs. (Savos).

BROWN-HEADED ASH SAWFLY (Tomostethus multicinctus) - CALIFORNIA - Larvae heavy on Modesto ash trees in Oroville, Butte County. (Cal. Coop. Rpt.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - OHIO - Galls becoming apparent on silver and red maples in Licking County (central). (Walker).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - First activity of season noted on evergreens in Stillwater area, Payne County, north central. (Okla. Coop. Sur.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Larvae heavy on boxelder trees in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Larvae and pupae heavy in Juniperus tamariscifolia in Salinas, Monterey County. (Cal. Coop. Rpt.).

AILANTHUS WEBWORM (Atteva aurea) - WISCONSIN - Total of 182 taken in light trap at Madison, Dane County, during period May 2-8. (Wis. Ins. Sur.).

AZALEA CATERPILLAR (Datana major) - MISSISSIPPI - Present in lower delta area. (Bennett, May 6).

A FLEA BEETLE (Altica torquata) - CALIFORNIA - Heavy on primrose in Cantil, Kern County. (Cal. Coop. Rpt.).

APHIDS - MARYLAND - Aphis gossypii heavy on althea at College Park; Macrosiphoniella sanborni infesting chrysanthemum and Macrosiphum rosae on rose at several localities in Prince Georges County. Aphis spiraecola heavy on terminals of spirea at Bladensburg, Prince Georges County. (U. Md., Ent. Dept.). FLORIDA - Rhopalosiphum nymphaeae general and severe on leaves of Caladium sp. at Winter Garden, Orange County. (Griffith, Apr. 29). ALABAMA - Macrosiphum rosae continues feeding on roses throughout State. Heavy infestation recently observed on roses in Calhoun County. (Shuler). MISSISSIPPI - Unspecified species feeding on red oaks and hardwoods; causing leaves to curl. (Bennett, May 6). ARKANSAS - Probably Stegophylla quercicola, has been heavy on oaks in spots in Fayetteville area, Washington County. (Ark. Ins. Sur.). OKLAHOMA - Infestations of several species continue to buildup on variety of ornamentals. (Okla. Coop. Sur.). NEVADA - Cinara tujafilina medium to heavy on arborvitae nursery stock recently shipped to local nurseries from out-of-State. (Rivers, Uriarte). CALIFORNIA - Pterocomma smithiae heavy on weeping willow nursery stock locally in San Diego, San Diego County. Prociphilus fraxinidipetalae medium on Modesto ash in Richmond, Contra Costa County. (Cal. Coop. Rpt.).

BOXELDER BUG (Periphyllus negundinis) - DELAWARE - Very abundant on some boxelders in New Castle County. (Burbutis).

A LEAFHOPPER (Keonolla confluens) - NEVADA - Adults active on various shrubs in Reno, Washoe County. (Rivers, Uriarte).

PSYLLIDS - KANSAS - Large numbers of Pachypsylla sp. present on buds of hackberry in Riley County, northeast. (Smith). CALIFORNIA - Eggs and adults of Psylla uncatoides medium on acacia nursery stock in Grover City, San Luis Obispo County. (Cal. Coop. Rpt.).

COCCIDS - CALIFORNIA - Trionymus diminutus heavy on phorium plants in planter areas of stores in San Jose, Santa Clara County. Eriococcus coccineus medium on cactus nursery stock in Yucca Valley, San Bernardino County. (Cal. Coop. Rpt.). IDAHO - Lecanium corni infested caragana in Caldwell, Canyon County, April 30. (Bechtolt). FLORIDA - All stages of Coccus hesperidum infesting Phyllanthus carolinensis at Pinellas Park, Pinellas County, April 22. Host det. by Erdman West. This is a new Florida Department of Plant Industry host record. (Bingaman, Hill). Pseudococcus adonidum locally severe on leaves of Dracaena sp. at Apopka, Orange County (Musgrove, Apr. 22); Diaspis boisduvalii scattered and moderate on leaves of Cattleya Athena III at Homestead, Dade County (Knowles, Apr. 30); Eucalymnatus tessellatus generally moderate on leaves of Dipholis salicifolia at Goulds, Dade County (Knowles, Apr. 28); Fiorinia theae locally moderate on leaves of Howeia belmoreana at Miami, Dade County (McFarlin, Brown; Apr. 22); Unaspis euonymi general and moderate on leaves of Euonymus sp. at Lutz, Hillsborough County (Fuller, Apr. 28); Howardia biclavis locally severe on Camellia japonica at Tampa, Hillsborough County (Hale, Apr. 29). GEORGIA - Fiorinia theae moderate on camellia in Columbus area. (Coleman). NORTH CAROLINA - Eriococcus azaleae infesting azalea in Cumberland County. (Robertson). MARYLAND - Aspidiotus perniciosus heavy on pyracantha at College Park, Prince

Georges County. (U. Md., Ent. Dept.). NEW YORK - Neolecanium cornuparvum and Lecanium spp. beginning to enlarge. (N.Y. Wkly. Rpt., May 4).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - This species and F. minuta heavy on wild flowers in Twenty-nine Palms area of San Bernardino County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - GEORGIA - Adults heavy on holly in Spalding and Clark Counties. (Tippins, Coleman). MARYLAND - Adults began emerging May 5 from mines in American holly at College Park, Prince Georges County. (U. Md., Ent. Dept.).

A JUNIPER TIP MIDGE (Oligotrophus sp.) - OHIO - Heavy egg deposition occurred on juniper in Licking County, central area. (Walker).

ROSE-SLUG (Endelomyia aethiops) - OREGON - First adults of season observed on rose bushes in Marion County. (Goeden).

SPRUCE SPIDER MITE (Oligonychus ununguis) - NEW YORK - Serious on Christmas trees near Jamestown, Chautauqua County. (N.Y. Wkly. Rpt., May 4). OHIO - Eggs hatched May 1 in Licking County (central). (Walker). ARIZONA - Infesting Italian cypress in Yuma area of Yuma County. (Ariz. Coop. Sur.).

SPIDER MITES - OKLAHOMA - Tetranychus spp. reported moderate to heavy on evergreens in south central, central and north central counties. (Okla. Coop. Sur.). FLORIDA - All stages of Oligonychus ilicis severely damaging leaves of Pyracantha sp. (April 17) and Tetranychus telarius scattered and severely damaging Musa sp. (April 20) at Tampa, Hillsborough County. (Fuller).

ERIOPHYID MITES - GEORGIA - Unspecified species damaging camellia in Griffin area, Spalding County. (Tippins). CALIFORNIA - Aculus ligustri medium on nursery stock of variegated California privet in Danville, Contra Costa County. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Heavy on fatshedera plants in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

BULB MITE (Rhizoglyphus echinopus) - RHODE ISLAND - Infesting Easter lilies in greenhouse in North Providence, Providence County. (Mathewson).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Adults appeared in Farmington-Bountiful area of Davis County. (Knowlton). NORTH DAKOTA - Aedes fitchii, A. spencerii and A. flavescens larvae in second to fourth stages; few A. vexans larvae also collected. Adults of Culiseta inornata and Culex tarsalis collected. C. inornata may be slightly more abundant than normal for this time of year. (Noetzel). MINNESOTA - During week ending May 2, total of 1,521 larval samples collected in Metropolitan Mosquito Control district (Hennepin, Ramsey, Washington, Dakota, Anoka and Scott Counties). Aedes vexans found in 37 percent of collections, Culiseta inornata in 35 percent, Aedes cinereus in 25 percent and Aedes excrucians in 15 percent. Twelve species of single-brood Aedes found in lesser percentages. Moderate to heavy rains May 5-6 caused some flooding and small number of Aedes vexans first-stage larvae being found. (Minn. Ins. Rpt.). WISCONSIN - Unspecified species, probably woodland species, reported in some northern counties. (Wis. Ins. Sur.). RHODE ISLAND - Culicine spring species not severe to May 8, but problem may increase if warm weather continues. (Mathewson). DELAWARE - Aedes cantator adults abundant and annoying in eastern areas of Sussex County. (Burbutis). FLORIDA - Aedes atlanticus and Psorophora ciliata fourth-stage larvae collected May 5 at Gainesville, Alachua County. (Moore). VERMONT - Mosquitoes annoying in all areas. (MacCollom).

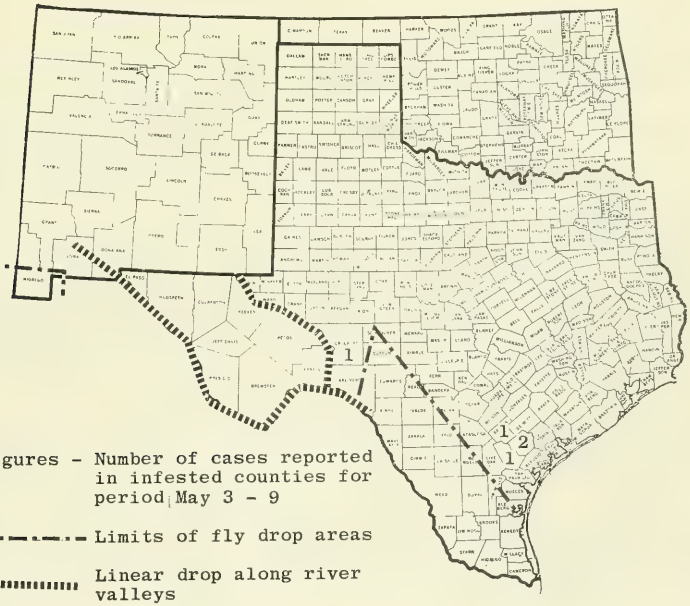
STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

Five screw-worm cases were confirmed during the period May 3-9 in TEXAS. Previously uninfested counties reporting screw-worm cases were Goliad and Crockett Counties. Screw-worms also found in Bee and Karnes Counties. The Republic of Mexico reported 25 screw-worm infestations from the States of Sonora (8), Nueva Leon (1), Tamaulipas (15) and Durango (1). A total of 90,797,450 sterile flies was released: 30,059,050 in Texas, 100,000 in Arizona and 60,638,400 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963:

Year	Positive Cases		Negative Cases		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,169	5,074	156	1,135	7,493:1,000	4,470:1,000
1963	107	758	303	2,440	353:1,000	311:1,000
1964	5	42	320	2,592	16:1,000	16:1,000

** The above ratio of positive screw-worm cases to negative cases is an index of the number of screw-worms present, and the comparison of yearly ratios is an index of the reduction in the native screw-worm population.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 3 - 9

Limits of fly drop areas

Linear drop along river valleys

HORN FLY (Haematobia irritans) - GEORGIA - Averaged 5 per head on 114 Hereford cattle in Putnam County. Averaged 25 per animal in Pike County. (Roberts). ALABAMA - Several large infestations observed in Macon County. Ranged 15-35 per animal on herd in Dallas County. (Ledbetter et al.). MISSISSIPPI - Present in large numbers. (Bennett, May 6). OKLAHOMA - Ranged 100-250 per head on cattle in southeastern counties. Continues light on animals checked in north central area. (Okla. Coop. Sur.). NEBRASKA - Activity increasing in eastern areas. Averaged 10-12 per head on herd in Lancaster County. (Walstrom).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Averaged 0.25-0.5 per head on cattle in McCurtain and Pushmataha Counties (southeast) and in Payne County (north central). (Okla. Coop. Sur.).

BLACK FLIES - CONNECTICUT - Becoming increasingly annoying. (Savos). VERMONT- Exceptionally heavy in all mountainous areas. (MacCollom). RHODE ISLAND - Reported from scattered sections of rural areas in Washington, Kent and Providence Counties. (Mathewson). PENNSYLVANIA - Prosimulium sp., probably hirtipes, abundant and very annoying in Porter Lake area of Pike County. (Simons). MARYLAND - Undetermined species biting humans at Seabrook, Prince Georges County. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - VERMONT - Easily observed in all areas. (MacCollom). INDIANA - Leaving overwintering sites in central area about May 1. (Bram). ILLINOIS - First of season observed on cattle in Mercer County. Populations extremely low. (Ill. Ins. Rpt.). NEBRASKA - Adult activity increasing on cattle in eastern areas. (Walstrom).

HOUSE FLY (Musca domestica) - OKLAHOMA - Remains light in north central area; 1-2 per scudder grid. (Okla. Coop. Sur.). VERMONT - Building up rapidly. (MacCollom).

BLACK BLOW FLY (Phormia regina) - UTAH - Numerous about swine pens in Ogden area of Weber County. (Knowlton).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Controls applied to approximately 90 percent of infested cattle in Cache County. (Knowlton, Tueller).

CATTLE LICE - MISSISSIPPI - Some cattlemen spraying for late control due to continued cool weather. (Bennett, May 6). GEORGIA - Solenopotes capillatus averaged 8.8 per square inch on faces of herd in Putnam County; Linognathus vituli averaged 0.16 per square inch on same herd. (Roberts). UTAH - Several herds of beef cattle treated near Beaver, Beaver County. (Knowlton, Esplin).

AMERICAN DOG TICK (Dermacentor variabilis) - NEBRASKA - Infestations heavy in Douglas, Lancaster and Seward Counties. (Walstrom, Shanek, Bergman). NORTH DAKOTA - Active in various eastern areas; reports scattered. (N.D. Ins. Sur.). MINNESOTA - Reported very abundant in Washington County. (Minn. Ins. Rpt.). WISCONSIN - Reported plentiful at Menomonie, Dunn County, and in Forest County. (Wis. Ins. Sur.). MARYLAND - Heavy on dog at Hagerstown, Washington County. (U. Md., Ent. Dept.). DELAWARE - Very numerous this spring in areas of New Castle County. (Burbutis). RHODE ISLAND - Reported from South Kingstown (Washington County), Warwick (Kent County) and Westerly (Washington County) since mid-April. (Howard, Veilleux, Mathewson).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - NEVADA - Infested several humans and horse in Reno-Sparks area, Washoe County. (Coop. Rpt.). Large populations, probably this species, present in Paradise Valley, Humboldt County. (Eckert).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Populations light to heavy on cattle in Le Flore, McCurtain and Pushmataha Counties, southeast; ranged 3-125 per head. (Okla. Coop. Sur.).

TICKS - NEW JERSEY - Heavy in several areas. (Ins.-Dis. Newsltr.). MISSISSIPPI - Heavy on livestock in some communities. (Bennett, May 6). UTAH - Noted on humans in Skull Valley and Rush Valley areas, Tooele County. (Knowlton).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Active in Payne County area, north central. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - IDAHO - A nuisance in homes in Caldwell, Canyon County. (Bechtolt, Apr. 28). UTAH - Entering numerous homes in Salt Lake City and vicinity, Salt Lake County. (Knowlton). DELAWARE - Continues annoying in households in eastern sections of New Castle County. (Burbutis). RHODE ISLAND - By far most conspicuous pest problem statewide. Reports of house infestations occasionally received during past winter, but recently increased greatly. Infestations appear especially heavy and often involve several properties in neighborhood. Populations on turf also appear especially high. (Mathewson, Veilleux, Cartier, King, Peabody, Buonaiuto). CONNECTICUT - Activity increased with warmer temperatures. (Savos). MASSACHUSETTS - Continues of concern to homeowners in eastern area. (Garland). VERMONT - Causing inquires in Burlington area. (MacCollom).

BOXELDER BUG (Leptocoris trivittatus) - NEW YORK - Reported almost daily in Niagara County. (N.Y. Wkly. Rpt., May 5). RHODE ISLAND - Troublesome to numerous homeowners in Woonsocket, Lincoln and Cumberland sections of Providence County. (Mathewson).

A GRASS BUG (Stictopleurus crassicornis) - IDAHO - A household nuisance in Lewiston, Nez Perce County. (Portman).

GIANT WATER BUG (Lethocerus americanus) - NORTH DAKOTA - Reported a nuisance around homes in Fargo area, Cass County. (Dogger).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - IDAHO - Present throughout home in Lewiston, Nez Perce County; not confined to eating areas. (Saxton).

A DERMESTID BEETLE (Trogoderma parabile) - NEVADA - Light in home kitchen in Reno, Washoe County. (Ting).

ANTS - MASSACHUSETTS - Several species annoying in many eastern area homes. (Garland). CONNECTICUT - Carpenter ants plaguing homeowners throughout State. (Savos). NORTH DAKOTA - Various species becoming problems in and around homes and other buildings over State. (N.D. Ins. Sur.). WASHINGTON - Winged sexual and worker carpenter ants found in 40 to 50-year-old house in Friday Harbor, San Juan County. These pests observed more often this year than formerly. (Baker). CALIFORNIA - Tapinoma sessile adults heavy in residence in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

CARPENTER BEE (Xylocopa virginica) - RHODE ISLAND - Troublesome in rustic house in Bonnet Shores, Washington County. (Mathewson).

SUBTERRANEAN TERMITES - RHODE ISLAND - First alates of Reticulitermes flavipes noted in Saunderstown, February 16; now reported statewide. Complaints heavier than usual in Providence County. (Mathewson, Veilleux, Cartier, King, Peabody, Hannah, Buonaiuto). NEW JERSEY - Reticulitermes sp. continues to swarm; constitutes bulk of household pest inquiries. (Ins.-Dis. Newsltr.). MARYLAND - Reticulitermes spp. winged forms swarmed at localities in Prince Georges County. (U. Md., Ent. Dept.). MISSISSIPPI - Unspecified species swarmed in many homes. (Bennett, May 6). OKLAHOMA - Reticulitermes spp. swarming in number of central and south central counties. (Okla. Coop. Sur.). OHIO - R. flavipes causing much concern to homeowners. (Delaplane, Lyon). UTAH - Unspecified species damaging home at Kanab, Kane County. (Knowlton).

POWDER-POST BEETLES - WISCONSIN - Lyctus spp. reported to have seriously damaged several houses in Bloomington area, Grant County. (Wis. Ins. Sur.). DELAWARE - Very heavy infestation of unspecified species noted in cellar timbers and floor joists in Kent County. (MacCreary).

STORED-PRODUCT INSECTS

DRUGSTORE BEETLE (Stegobium paniceum) - OHIO - Severe feeding damage to dog pellets noted at Wooster, Wayne County (northeast). (Galford, Lyon). PENNSYLVANIA - Adults and larvae troublesome in cocoa in bakery at Souderton, Montgomery County. (Cole, Apr. 24).

BENEFICIAL INSECTS

LADY BEETLES - WASHINGTON - Adults of Hippodamia convergens and Coccinella transversoguttata averaged about one in 5-10 sweeps of alfalfa grown for seed at Gardena Bench, Lowden area, Walla Walla County. (Featherstone, Halfhill). WYOMING - Adults of several species appearing in alfalfa and small grains in Laramie County. (Marks). SOUTH DAKOTA - Populations of unspecified species ranged 5-12 per 25 sweeps in southeastern area alfalfa. (Hintz). NEBRASKA - Hippodamia spp. adult activity common and uniformly distributed in eastern and southern areas. Populations building up where prey exist. (Calkins, Bergman). KANSAS - Populations, primarily H. convergens and Coleomegilla maculata fuscilabris, increasing in wheat and alfalfa in northeast and north central areas; should control aphid infestations if warm weather continues. (Peters). TEXAS - Counts of several species very high in vetch and alfalfa in Brazos County. (Randolph). ILLINOIS - Adults of unspecified species vary 10-120 per 100 sweeps in clover and alfalfa in southern half of State; few larvae noted. (Ill. Ins. Rpt.).

DAMSEL BUGS (Nabis spp.) - ILLINOIS - Adults vary 0-40 per 100 sweeps on clover and alfalfa in southern half of State. (Ill. Ins. Rpt.). NEBRASKA - Adults very active and common in east and south; populations present where prey readily available. (Bergman). KANSAS - Larvae increasing in wheat and alfalfa in northeast and north central areas; should assist in controlling aphid populations provided warm weather continues. (Peters). UTAH - N. alternatus and other species numerous in alfalfa in Washington County. (Knowlton).

FLOWER BUGS (Orius spp.) - KANSAS - O. insidiosus increasing in wheat and alfalfa in northeast and north central areas; should aid in control of aphid populations if weather continues warm. (Peters). UTAH - O. insidiosus and O. tristicolor present in garden flowers and blossoming wild mustard where thrips numerous in Washington County. (Knowlton).

GREEN LACEWINGS (Chrysopa spp.) - SOUTH DAKOTA - Adults present in southeastern area alfalfa. (Hintz). ILLINOIS - C. oculata adults common in alfalfa and clover in southern half of State; no larvae observed. (Ill. Ins. Rpt.).

LACEWINGS - KANSAS - Larval numbers in wheat and alfalfa increasing in northeast and north central areas; with continued warm weather, should aid in control of aphid populations now present. (Peters).

SYRPHID FLIES - NEW YORK - Very active throughout Clinton County. First eggs found April 27; very plentiful among clusters of aphids on fruit buds. Eggs also noted in Wayne County on same date. (N.Y. Wkly. Rpt.). ILLINOIS - Larvae common in pea aphid infested alfalfa in southern area. (Ill. Ins. Rpt.). UTAH - Two aphidophagous species common in pea aphid infested alfalfa in Washington County. (Knowlton).

HONEY BEE (Apis mellifera) - NORTH DAKOTA - Most packages now introduced; plum near blossom. Bees working willow, boxelder and dandelion in southeast. Pollen flow appears normal. Moisture good to excellent over State. (Noetzel).

ICHNEUMONS (Ophion spp.) - WISCONSIN - Total of 41 taken in light trap at Mazomanie, Dane County, May 1-5. (Wis. Ins. Sur.).

PARASITIC WASPS - UTAH - Parasitized specimens of pea aphid fairly numerous in alfalfa in Santa Clara, St. George-Washington area, Hurricane and La Verkin, Washington County. (Knowlton).

A BRACONID - TEXAS - An unspecified species heavily parasitizing Peridroma saucia (variegated cutworm) in Brazos County. (Randolph).

MISCELLANEOUS INSECTS

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Third instars ranged up to 3 per square foot near New York Thruway north of Syracuse. (N.Y. Wkly. Rpt., May 5).

A TIGER BEETLE (Cicindela sp.) - CALIFORNIA - Populations heavy in nesting sites of alkali bees (Nomia spp.) in San Joaquin, Fresno County. (C. Ferris).

FLEA BEETLES - ALABAMA - Disonycha glabrata, Systena elongata and Epitrix fuscula buildup indicated by sweepings along roadsides and gardens in Tallapoosa County. Det. by E. U. Balsbaugh, Jr. (Barwood).

A POWDER-POST BEETLE (Lyctus brunneus) - OREGON - Damage to bamboo material from orient appearing in numerous stores and novelty shops in State. Det. by M. Hatch. (Larson).

SAP BEETLES (Glischrochilus spp.) - INDIANA - Abundant in fields in melon-growing area of southwest; temperature at time of collection 78° F. (Bram).

LOCUST LEAF MINER (Xenochalepus dorsalis) - ILLINOIS - One adult swept from alfalfa in Washington County. (Ill. Ins. Rpt.).

RED-ADMIRAL (Vanessa atalanta) - WISCONSIN - Butterflies unusually abundant in scattered areas of State. (Wis. Ins. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Individual moths observed in Larimer County. (Jenkins, Thatcher, Daniels).

CICADAS - TEXAS - Heavy concentration of undetermined species present in southwest area; main concentration appears to be around Encinal and Artesia Wells, La Salle County, and ranges approximately 10-20 miles in each direction. (Texas Coop. Rpt.).

A CADDISFLY (Brachycentrus sp.) - IDAHO - Huge swarms appeared at Lewiston, Nez Perce County, April 28. (Kambitsch).

CARPENTER ANTS (Camponotus spp.) - IOWA - Winged adults of larger species noted in Le Mars, Plymouth County; actively swarming for month. (Iowa Ins. Inf., May 4).

A UROPODID MITE (Fuscuropoda marginata) - CALIFORNIA - Present in chicken manure in poultry establishment in Escalon, San Joaquin County. Det. by R. Axtell. Excellent fly control resulted as mite fed on eggs of house fly. This is first record of this mite in the State. (Cal. Coop. Rpt.).

Sticky-board Traps in Arizona - Average counts per board in Yuma County week of May 3-9 were green peach aphid (Myzus persicae) 3.17; melon aphid (Aphis gossypii) 15.92; and beet leafhopper (Circulifer tenellus) 13.67. (Ariz. Coop. Sur.).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chloridea (Heliothis) zea (corn earworm)	Estigmene acrea (salt-marsh caterpillar)	Earias cliviana (spotted bollworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commiralis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Prosogonia guttulomacula (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																						
Hope 4/23-5/6				12					0	14					0				13			
Kelso 4/23-5/6				2					0	0	0				3				1			
CALIFORNIA																						
Davis 5/2-8			BL	6		1		1							2				54			Misc.
FLORIDA																						
Gainesville 5/5			BL	4				12		1	1				7	1			1			
GEORGIA																						
Tifton 4/30-5/6			BL						0	0							0	0				
ILLINOIS (County)																						
Champaign 5/1-7	52-76	0		7											2				94			
KANSAS																						
Garden City 4/30, 5/1, 4				1	15		35							27	10				9			
Hays 4/30, 5/2,5				4	10		76							28	10	2			46			
Manhattan #1 5/1-7				18	1		14			1			1		23				54			
Manhattan #2 5/1-7				368	122		190			16			3		351	21			2246			
Mound Valley 4/30, 5/2,4							15									2			36			
MISSISSIPPI																						
Stoneville 5/2-8	58-85	0.70"	MV	33		6		2	4	4					7	13		1	12			
Stoneville 5/2-8	58-85	0.70"	BL	74		6		15		8					14	24	1	5	18			
NORTH DAKOTA																						
Fargo 5/1-8				8	2										5				152			
SOUTH CAROLINA (Counties)																						
Oconee 4/25-5/1				2				1		1					4	1						
Charleston 5/4-10	52-90	0	BL	14		2		1	0	3	0				9	1	0	0	3		3	
TENNESSEE (Counties)																						
Madison 4/21-27				5											2							
Madison 4/28-5/4				2															1			
Maury 4/21-27				6											2	1			6			
Maury 4/28-5/4				14											6		1		14			
Robertson 4/21-27				3											1	1			4			
Robertson 4/28-5/4				16											3				6			
Cumberland 4/21-27				4											10	2			12			
Greene 4/28-5/4				6											1				2			
Blount 4/21-27				8											9	1			12			
Blount 4/28-5/4				17											9	1			21			
Johnson 4/21-27				3											2	2			3			
Johnson 4/28-5/4				4											3				4			
TEXAS																						
Brownsville 5/1-6			6 BL			71		1473	1	665	75		10692		311	186	89	62	1		886	
Waco 5/2-8				63		1		118		100					102	62		48		64	16	
WISCONSIN																						
Madison 5/1-7	50-83		BL	20											15				178			
Middleton 5/1-7			BL	5											6				81			
Platteville 5/5-6			BL																11			
Mazomanie 5/1-5			BL	14											7				88			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

CORN INSECT LOSSES IN INDIANA IN 1963

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The fall corn insect survey in Indiana in 1963 indicated marked reductions in loss from the corn earworm (Heliothis zea) and Angoumois grain moth (Sitotroga cerealella). The European corn borer (Ostrinia nubilalis) increased slightly and the corn leaf aphid (Rhopalosiphum maidis) was the most abundant since survey records of this insect have been taken. Damage from feeding by birds was about the same as in 1962.

In 1963, Indiana corn yields reached a record high average of 87 bushels per acre. Yield estimates at the time of survey as shown in table 1 indicated good yields in all areas with exceptionally good yields in the north-northwest (NNW), southwest (SW) and south-southeast (SSE) areas. In general, the corn was well advanced toward maturity at the time the survey was made, most fields having dry leaves with green stalks, although in the north-northeast (NNE), northeast (NE), south-south central (SSC) and south-southwest (SSW) areas, the majority of fields were dry and harvest had started. Stalk rot was very scarce and of no consequence in affecting harvest.

Bird damage as shown in table 1 was about the same as in 1962, although a different method of evaluating damage was used. Previously, estimates were based on visual observations, but this year a method similar to that used to measure corn earworm losses was used. The number of ears in the sample showing evidence of bird feeding was recorded and the number of destroyed kernels on the first two damaged ears was counted. Using the average number of kernels per ear as shown in table 3, the percent loss due to bird feeding was estimated. Increases in loss were noted in the north-northwest (NNW), north-north central (NNC), north-northeast (NNE), southwest (SW) and southeast (SE) areas. Plants damaged averaged 10.7 percent and 41 percent of the fields surveyed had some damaged plants. The estimated bushel loss was 1,931,200 (table 6).

Populations of the European corn borer (table 2) were slightly higher than in 1962. Increases in borers per 100 plants were recorded in the north-northeast (NNE), north-north central (NNC), southwest (SW), south-southwest (SSW) and south-southeast (SSE) areas. The average borers per 100 plants in 1963 was 35.7 compared with 28.9 in 1962. The percent plants infested was 27.8 (24.7 in 1962) and 82 percent of fields had some borer infestation. The percent loss increased from 0.8 in 1962 to 1.1 in 1963. However, in addition to the increase in borer population, the increased corn production in 1963 raised the bushel loss from 3,336,489 in 1962 to 4,318,400 in 1963 (table 6).

Corn earworm populations were very much lower in 1963. Reduced infestation was shown in all areas of the State, but in the northern section no infested fields were observed. The highest infestation was found in the northwest (NW) area and in the entire southern fourth of the State (SS), with the exception of the southeast (SE) area. Only 15 percent of the fields surveyed had infested ears. The bushel loss dropped from 1,831,832 bushels in 1962 to 156,900 bushels in 1963, not only reflecting a lower infestation, but also a much lower damage to the ears that were infested. The data on the earworm loss survey is given in table 3.

An innovation in the tabulation of abundance and damage by corn earworm was tried in 1963. In addition to the political divisions recorded in table 3 and in previous years, the survey data was also assembled by river drainage systems. These data are given in table 4. Since the survey stops had been established on a county unit system, some of the drainage areas had only a few fields and, in some instances, it was impossible to determine in which drainage area the surveyed field was located. The interesting development from this arrangement of the data was the apparent distribution of the infestation up the waterways. The heaviest infestation occurred along the Ohio and the Patoka Rivers. Infested fields were found in the lower Wabash and White River systems, but not in the

upper reaches of these streams. Field infestation occurred as far north as Tippecanoe County. The Whitewater River area, although farther south than Lafayette, had no infested fields. This stream drains into the Miami River in Ohio, which in turn flows into the Ohio River. The one infested field in the Kankakee drainage, which flows into the Illinois River, was located in the extreme south edge of Benton County, that may well have been part of the Wabash drainage. The Maumee River area which drains into Lake Erie and the St. Joseph River that drains into Lake Michigan had no infested fields. There were no survey fields in the Calumet River area. Since these preliminary studies indicate the possibility of drainage systems influencing the infestation by corn earworm, additional survey fields will be added in 1964 as well as the relocation of other established survey points to positively define their location in reference to a drainage area.

One reason this apparent influence of drainage areas was so evident this year may be due to the lateness in which corn earworm moths appeared in abundance in Indiana. The severe cold winter in 1962-63, with subfreezing temperatures as far south as central Georgia, Alabama and Mississippi, may have reduced the overwintering populations in these areas and delayed the migration of moths into the more northern parts of the Midwest. Although corn earworm moths appeared in abundance late in the season, the corn in the more northern areas of Indiana was well past the stage of attractiveness to the earworm and consequently was not infested, or if the eggs were laid, the larvae did not survive long enough to register any damage.

The corn leaf aphid showed a very great increase over populations in 1962 (table 5). The percent of plants infested increased from 23.0 in 1962 to 53.9 in 1963. All areas showed increases except the south-southwest (SSW), with the greatest occurring in the northwest (NW), north central (NC), northeast (NE), southeast (SE) and south-south central (SSC) areas. The average percent of nubbins present on infested plants was 12.8. Very few nubbins were observed on noninfested plants. Of the total fields surveyed, 93 percent had aphid-infested plants. The loss in 1963 was estimated at 6.5 percent compared with 3.6 percent in 1962. The estimated bushel loss was 28,204,900 compared with 12,368,220 bushels in 1962.

Angoumois grain moth infestations in the field were almost nonexistent. Only three fields had infested kernels at harvest time. These occurred in Gibson, Vanderburgh and Warrick counties. The percent loss was less than 0.1 and the estimated bushel loss was 79,100 (table 6).

The total corn loss in Indiana due to these five sources is given in table 6. A total of 34,690,500 bushels was destroyed with a monetary value of $35,573,100.

Table 1. Crop conditions and bird damage. Fall corn insect survey, Indiana, 1963

Area	Counties	Fields	Yield estimate	Maturity a/	Stalk rot	Bird Damage: Fields attacked	Bird Damage: Plants attacked	Bird Damage: Loss 1962	Bird Damage: Loss 1963
	No.	No.				Pct.	Pct.	Pct.	Pct.
NNW	7	16	Very good	Green-dry	None	25	10.2	.02	.4
NNC	5	10	Good	Green-dry	None	30	11.2	.04	.6
NNE	6	10	Good	Dry	None	50	18.0	.60	1.4
NW	6	15	Good	Green-dry	Scarce	40	5.6	.29	.3
NC	8	16	Good	Green-dry	None	33	4.8	.01	.1
NE	10	19	Good	Dry	Scarce	37	5.3	0.	.5
SW	8	13	Very good	Green-dry	None	46	15.1	0.	.5
SC	7	11	Good	Green-dry	None	54	13.4	1.00	.3
SE	9	16	Good	Green-dry	None	50	19.5	.20	.9
SSW	10	17	Good	Dry	None	35	6.6	1.12	.6
SSC	7	9	Good	Dry	None	44	9.8	.70	.6
SSE	9	11	Very good	Green-dry	Scarce	45	9.4	1.70	.4
Averages									
NN	18	36	Good	Green-dry	None	35	13.1	.22	.8
N	24	50	Good	Green-dry	Scarce	37	5.2	.10	.2
S	24	40	Good	Green-dry	None	50	16.0	.40	.6
SS	26	37	Good	Dry	None	41	8.6	1.17	.5
West	31	61	Very good	Green-dry	None	36	9.4	.36	.4
Central	27	46	Good	Green-dry	None	40	9.8	.44	.4
East	34	56	Good	Dry	Scarce	46	13.0	.62	.7
State	92	163	Good	Green-dry	Scarce	41	10.7	.47	.5

a/ Green-dry indicates dry leaves with stalks still green and succulent.

Table 2. European corn borer abundance and damage. Fall corn insect survey, Indiana, 1963

Area	Fields infested	Counties infested	Plants infested 1962	Plants infested 1963	Borers per 100 plants 1962	Borers per 100 plants 1963	Loss 1962	Loss 1963
	Pct.	Pct.	Pct.	Pct.	No.	No.	Pct.	Pct.
NNW	100	100	52.7	58.6	89.3	72.5	2.6	2.2
NNC	100	100	27.6	44.8	27.6	45.8	.7	1.4
NNE	80	100	13.2	25.6	13.6	46.4	.4	1.4
NW	93	100	27.5	18.9	31.7	18.5	1.0	.6
NC	75	100	16.3	13.2	16.0	13.6	.5	.4
NE	84	100	20.0	14.1	21.4	16.2	.6	.5
SW	69	75	29.2	30.3	31.7	49.9	1.0	1.5
SC	54	71	21.1	18.9	24.4	18.2	.7	.6
SE	31	67	18.1	12.8	27.2	15.6	.8	.5
SSW	100	100	29.4	35.5	29.8	62.4	.9	1.9
SSC	100	100	33.2	30.7	30.0	35.1	.9	1.0
SSE	100	100	8.4	30.9	6.6	34.5	.2	1.0
Averages								
NN	93	100	31.2	43.0	42.8	54.9	1.3	1.7
N	84	100	21.3	15.4	23.0	16.1	.7	.5
S	51	71	22.8	20.7	27.8	27.9	.8	.9
SS	100	100	23.7	32.4	22.1	44.0	.7	1.3
West	90	94	34.7	35.8	45.1	50.8	1.4	1.6
Central	82	93	24.6	26.9	24.6	28.4	.7	.8
East	74	92	14.9	20.8	17.2	28.2	.5	.8
State	82	93	24.7	27.8	28.9	35.7	.8	1.1

The heaviest infested field was in Noble County (NNE) with 76% infested, 304 borers per 100 plants and a loss of 9.1%.

Table 3. Corn earworm abundance and damage. Fall corn insect survey, Indiana, 1963.

Area	Counties infested	Fields infested	Plants infested 1962	Plants infested 1963	Kernels per ear	Loss 1962	Loss 1963
	Pct.	Pct.	Pct.	Pct.	No.	Pct.	Pct.
NNW	0	0	14.4	0.	719	.3	0.
NNC	0	0	12.0	0.	702	.1	0.
NNE	0	0	8.8	0.	763	.2	0.
NW	67	33	11.7	2.4	742	.2	.1
NC	12	6	7.7	.5	758	.2	.0
NE	10	5	6.7	.2	759	.1	.0
SW	25	15	23.7	6.2	741	1.2	.2
SC	14	9	31.6	1.4	720	1.3	.0
SE	0	0	3.5	0.	753	.1	0.
SSW	40	24	30.4	2.4	719	2.0	.0
SSC	57	56	29.6	8.4	786	1.7	.3
SSE	44	36	31.2	3.3	696	.8	.1
Averages							
NN	0	0	11.7	0.	728	.2	0.
N	30	15	8.7	1.0	753	.2	.0
S	13	8	19.6	2.5	738	.9	.1
SS	47	39	30.4	4.7	734	1.5	.1
West	33	18	20.0	2.8	730	.9	.1
Central	21	18	20.2	2.6	742	.8	.1
East	14	10	12.6	.9	743	.3	.0
State	23	15	17.6	2.0	738	.7	.1

Table 4. Corn earworm abundance and damage. Fall corn insect survey, Indiana, 1963. Survey data arranged by drainage areas.

Drainage area	Counties		Fields		Plants Infested	Kernels	Kernels damaged	Loss
	In area	Infested	In area	Infested				
	No.	Pct.	No.	Pct.	Pct.	No.	No.	Pct.
Ohio	17	52.9	18	50.0	7.1	726	7.4	.2
Patoka	2	50.0	2	50.0	2.0	743	4.5	.1
Lower Wabash	7	14.2	11	9.1	1.1	768	5.5	.1
Westfork White	17	17.6	28	10.7	3.4	736	1.3	.0
Eastfork White	16	12.5	25	12.0	1.0	737	.8	.0
Whitewater	4	0.	5	0.	0.	780	0.	0.
Upper Wabash	28	21.4	48	14.6	1.0	759	2.0	.0
Kankakee	10	10.0	22	4.5	.4	701	1.0	.0
Calumet	no fields surveyed in this area							
St. Joseph	5	0.	5	0.	0.	702	0.	0.
Maumee	4	0.	5	0.	0.	767	0.	0.
State a/	110	17.9	169	15.1	1.6	742	2.2	.1

a/ Some counties occurred in several drainages. Certain fields on the border of two drainage areas were tabulated as occurring in both areas.

Table 5. Corn leaf aphid abundance and damage. Fall corn insect survey, Indiana, 1963

Area	Counties infested	Fields infested	Plants infested: Severe	Plants infested: Moderate	Plants infested: Light	Plants infested: Total 1963	Plants infested: Total 1962	Infested plants with nubbins: Severe	Infested plants with nubbins: Moderate	Infested plants with nubbins: Light	Infested plants with nubbins: Total	Loss 1963	Loss 1962
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
NNW	100	100	7.0	20.8	36.2	64.0	25.1	4.8	10.4	8.4	23.6	8.7	4.1
NNC	100	90	3.2	19.2	43.2	65.6	24.4	2.4	10.0	16.4	29.6	7.4	3.9
NNE	100	90	1.2	12.8	39.6	53.6	18.4	.8	7.2	14.8	22.8	5.5	2.3
NW	100	100	9.6	18.7	38.7	66.9	13.6	4.0	4.0	.4	8.4	10.0	1.0
NC	100	100	.8	11.0	50.4	62.1	10.9	.4	2.4	2.4	5.2	6.1	.3
NE	100	100	4.0	11.4	27.5	43.6	11.8	2.0	2.0	.4	4.4	5.6	.5
SW	100	85	11.7	22.2	24.6	58.2	41.8	9.2	4.0	2.0	15.2	10.2	8.7
SC	71	82	3.6	15.3	36.0	54.9	38.7	1.6	7.2	4.8	13.6	6.6	7.9
SE	100	100	3.8	25.8	33.8	62.4	27.8	2.4	12.0	3.6	18.4	7.3	4.9
SSW	100	88	.2	6.8	32.5	39.5	42.1	.4	1.6	3.6	5.6	3.7	8.8
SSC	86	78	0.	7.6	28.4	36.0	8.0	0.	.4	1.2	1.6	3.0	.0
SSE	88	82	.4	5.8	33.3	39.6	13.2	.8	1.6	2.0	5.2	4.2	.9
Averages													
NN	100	94	3.8	17.6	39.7	61.1	22.6	2.8	9.2	13.2	25.3	7.2	3.8
N	100	100	4.8	13.7	38.9	57.5	12.1	.8	2.8	1.2	6.0	7.2	.6
S	92	90	6.4	20.8	31.5	58.4	36.2	4.4	7.6	3.6	15.7	8.0	7.2
SS	88	84	.2	6.7	31.4	36.7	21.1	.4	1.2	2.4	4.1	3.6	3.2
West	100	93	7.1	17.1	33.0	57.3	30.6	4.8	4.8	3.6	13.2	8.2	5.6
Central	89	89	1.9	13.1	38.8	53.8	20.6	1.2	4.8	6.4	12.5	5.8	3.0
East	94	95	2.4	13.8	34.4	50.8	17.8	1.6	5.6	5.2	12.7	5.6	2.2
State	95	93	3.8	14.7	35.4	53.9	23.0	2.0	5.2	4.8	12.8	6.5	3.6

Table 6. Losses in corn yield due to insects and birds. Fall corn insect survey, Indiana, 1963

Area	Total corn yield 000's a/	Bird damage 000's		European corn borer 000's		Corn earworm 000's		Corn leaf aphid 000's		Angoumois grain moth 000's		Total losses 000's		000's
	Bus.	Pct.	Bus.	Pct.	Bus.	Pct.	Bus.	Pct.	Bus.	Pct.	Bus.	Pct.	Bus.	Dollars
NNW	49,646.0	.4	198.6	2.2	1092.2	0.	0.	8.7	4319.2	0.	0.	11.3	5610.0	5778
NNC	27,160.3	.6	163.0	1.4	380.2	0.	0.	7.4	2009.9	0.	0.	9.4	2553.1	2630
NNE	24,014.4	1.4	336.2	1.4	336.2	0.	0.	5.5	1320.8	0.	0.	8.3	1993.2	2053
NW	48,296.8	.3	144.9	.6	289.8	.1	48.3	10.0	4829.7	0.	0.	12.0	5312.7	5472
NC	53,318.7	.1	63.5	.4	213.3	.0	.0	6.1	3252.4	0.	0.	6.6	3519.0	3624
NE	45,905.6	.2	91.8	.5	229.5	.0	.0	5.6	2570.7	0.	0.	6.3	2892.0	2979
SW	31,848.7	.5	159.2	1.5	477.7	.2	63.7	10.2	3248.6	0.	0.	12.4	3949.2	4068
SC	21,174.7	.3	63.5	.6	127.0	.0	.0	6.6	1397.5	0.	0.	7.5	1588.0	1636
SE	41,645.8	.9	374.8	.5	208.2	0.	0.	7.3	3040.1	0.	0.	8.7	3613.1	3721
SSW	39,543.0	.6	237.2	1.9	751.3	.0	.0	3.7	1463.1	.2	79.1	6.4	2530.7	2607
SSC	11,787.8	.6	70.2	1.0	117.9	.3	35.4	3.0	353.6	0.	0.	4.9	577.6	595
SSE	9,508.0	.4	38.0	1.0	95.1	.1	9.5	4.2	399.3	0.	0.	5.7	541.9	558
Averages														
NN	100,820.7	.8	697.8	1.7	1808.6	0.	0.	7.2	7649.9	0.	0.	9.7	10156.3	10832
N	147,521.1	.2	290.0	.5	732.6	.0	48.3	7.2	10652.8	0.	0.	7.9	11723.7	12075
S	94,669.2	.6	597.5	.9	812.9	.1	63.7	8.0	7686.2	0.	0.	9.6	9160.3	9435
SS	60,838.8	.5	345.9	1.3	964.3	.1	44.9	3.6	2216.0	.0	79.1	5.7	3650.2	3760
West	169,334.5	.4	739.9	1.6	2611.0	.1	112.0	8.2	13860.6	.0	79.1	10.5	17323.5	17843
Central	113,441.5	.4	350.5	.8	838.4	.1	35.4	5.8	7013.4	0.	0.	7.1	8237.7	8485
East	121,073.8	.7	840.8	.8	869.0	.0	9.5	5.6	7330.9	0.	0.	7.1	9050.2	9322
State	403,849.8	.5	1931.2	1.1	4318.4	.1	156.9	6.5	28204.9	.0	79.1	8.3	34690.5	35731

a/ Based on County yield estimates supplied by Dr. Robert E. Straszheim of the USDA Statistical Reporting Service. Monetary loss based on the average per bushel selling price for October through February 1964.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 21 May 22, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 May 22, 1964 Number 21

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL more abundant on alfalfa in western Massachusetts than in previous years; damage to unprotected first-growth alfalfa moderate to heavy in all sections of Maryland; extensive damage reported in Franklin and Lauderdale Counties, Alabama; and continues to be reported in several new counties in Illinois, Arkansas and Missouri. (pp. 497, 498). Scattered, heavy infestations of SPOTTED ALFALFA APHID occurring in some alfalfa in Graham County, Arizona, and continues light in other counties. (p. 500). Larvae of CEREAL LEAF BEETLE active in Michigan; adults most numerous in oat fields. First treatment operations of State-Federal suppression program completed on May 10; control of adults excellent. (p. 502). Widespread outbreak of ARMYWORM occurred in northeast Arkansas; larvae 3-8 per square foot in southeast Missouri; heavy in some north delta counties of Mississippi; and heavy in Dyer, Lake and Obion Counties, Tennessee. Most infestations in wheat in latter States. Damage to small grains and pastures by armyworm continues over wide part of north central and central Texas. (pp. 502, 513). EUROPEAN CORN BORER moths flying in Delaware, Maryland and Missouri. (p. 502). Wheat streak mosaic, transmitted by WHEAT CURL MITE, found throughout winter wheat-growing areas of South Dakota. (p. 504).

Adult emergence of CODLING MOTH reported in Washington, Indiana, Ohio and Delaware. ORIENTAL FRUIT MOTH adults reported present in Colorado and larvae active in southeast Missouri. (p. 505).

COLORADO POTATO BEETLE adults heavy and causing damage to potatoes and tomatoes on Eastern Shore of Virginia and Maryland. Larvae and adults appear more widespread and damaging in Alabama than in 1963 and small numbers of larvae noted in southeastern Missouri. (p. 508). No evidence of POTATO TUBERWORM found in 4 locations in Monroe County, Michigan, known infested in 1963. (p. 508). CABBAGE MAGGOT caused heavy injury to over 8 acres of cabbage at Severn, Anne Arundel County, Maryland; and CABBAGE LOOPER caused light to heavy damage to 58 percent of cabbage plants at Sanford, Seminole County, Florida. (p. 509). Winged specimens of PEA APHID appearing on peas in Dane, Rock and Sauk Counties, Wisconsin, and considerably increased on peas in most areas of Sussex County, Delaware. ASPARAGUS BEETLES active on asparagus in Delaware, New York, Michigan and Wisconsin. (p. 510).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) larvae moderate to heavy in Livingston, Oakland, Monroe and Sanilac Counties, Michigan. Another sawfly, N. pratti pratti, rather heavy on shortleaf and Loblolly pines over large portion of Lunenburg County, Virginia, and increased in severity in Orange, Alamance, Guilford, Forsyth and Rockingham Counties, North Carolina. (p. 515). SPRING CANKERWORM feeding noticeable on elms near Mazomanie and at Brodhead in Wisconsin and heavy in sections of Iowa, and unspecified cankerworms causing concern to homeowners in suburban areas north of Minneapolis and St. Paul, Minnesota, and quite heavy in several areas of New Jersey. (p. 515).

Aedes MOSQUITOES causing unusual annoyance throughout Indiana due to severe spring rains, and larvae rather abundant in Iowa and Minnesota. Mosquito outlook more serious than normal in many northern areas of Utah due to continued rains and snow. Several other States reported adult activity. (p. 520). HORN FLY heavy on cattle in sections of Alabama and Georgia, and populations increased considerably in Payne County, Oklahoma. General buildup of BLACK FLIES noted in Alabama (heavy in some areas) and large numbers present and biting in Green and Dane Counties, Wisconsin. (p. 521). AMERICAN DOG TICK activity on the increase rather generally; ROCKY MOUNTAIN WOOD TICK populations unusually high in Cache la Poudre River area of Larimer County, Colorado; and LONE STAR TICK numerous in eastern third of Oklahoma. (p. 522).

DETECTION

PEAR RUST MITE (Epitrimerus pyri) recorded for first time in Ohio (p. 506), and an ERIOPHYID MITE (Nalepella tsugifoliae) found for first time in Rhode Island (p. 518). ALFALFA WEEVIL collected for first time in Franklin County, Ohio; Jasper County, Illinois; Bollinger, Wayne, Stoddard, Butler, Ripley and Carter Counties, Missouri; and Craighead, Greene and Poinsett Counties, Arkansas. (pp. 497, 498).

CORRECTIONS and ADDITIONAL NOTES

See page 513

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 519).

Hawaiian Insect Notes. (p. 526).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Wheat and Barley in Colorado During 1963. (p. 527).

Survey Methods for Survey Entomologists - Insects Interfering with Corn Pollination-Loss Survey Method. (pp. 528-530).

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1964

The Weather Bureau's 30-day outlook for mid-May to mid-June calls for temperatures to average below seasonal normals east of the Appalachians and also along the west coast. In most of the remainder of the Nation above normal averages are predicted with greatest departures in the Great Plains and southern Rockies. Subnormal rainfall is expected over all portions of the Nation except for near normal amounts in most of the northern border States, and also east of the Appalachians, and heavier than normal over the Pacific Northwest, New England, and Florida.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING MAY 11

Fair and mild describes the weekly weather over most of the Nation. Especially noticeable were the 90° temperatures over parts of the central Rocky Mountains and the northern and central Great Plains at the end of the week. Widely scattered showers were most prevalent in the central and northeast portions. Storms developed early in the week over Oklahoma. A stationary front extended eastward to South Carolina and a cold front extended southwest to Texas. Another low was centered over northern Minnesota from which a front extended southwestward to Nebraska and westward to California.

weather continued on page 526.

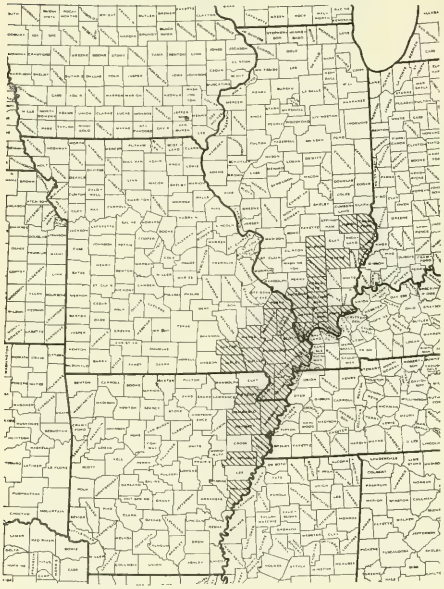
CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - Trimerotropis pallidipennis occurring in most southern and central sections and causing considerable concern in many areas. (Ariz. Coop. Sur.). OKLAHOMA - Nymphs of several species 6 per square yard in Major County, northwest; only light numbers present in field margins in southwest. (Okla. Coop. Sur.). MISSOURI - Early instars of Melanoplus sp. swept from highway right-of-way in Carroll County, central area. (Houser, Thomas, Wood). WYOMING - Grasshoppers just beginning to hatch in heavily egg-infested area at Wheatland, Platte County; season retarded. Species present included first instars of Amphitornus coloradus (1 per 100 square feet), first instars of Aulocara elliotti (2 per 100 square feet), first instars of Cordillacris occipitalis (12 per 100 square feet), second and third instars of Melanoplus confusus (3 per 100 square feet), first instars of M. occidentalis (6 per 100 square feet) and fifth instars and adults of Psoloessa delicatula (1 per 100 square feet). In lightly egg-infested area at Glendo, Platte County, major range species not hatching; season retarded. Species present included adults of Arphia conspersa (1 per 100 square feet), first instars of M. confusus (1 per 100 square feet) and fifth instars and adults of Psoloessa delicatula (4 per 100 square feet). Also present at Glendo were adults of Eritettix simplex tricarinatus and Xanthippus corallipes. (Pfadt). SOUTH DAKOTA - Grasshopper egg development survey in Zieback, Dewey and Corson Counties (northwest) revealed 10 percent coagulated, 30 percent eye-spot and 60 percent segmented. Parasites or predators destroyed 10 percent of egg pods. (Zimmerman). NORTH DAKOTA - Light egg hatch started in north central and northwestern sections. Few first instars of M. bivittatus and M. sanguinipes observed in McHenry, Bottineau, Ward, Renville and Mountrail Counties. Egg development ranged from clear to advanced segmentation; 30 percent segmented, 54 percent eyespot, 15 percent coagulated and 1 percent clear. Dominant species M. bivittatus and M. sanguinipes. About 6 percent of egg pods infested or destroyed by bee fly, carabid and blister beetle larvae. About 6 percent of eggs desiccated. (Brandvik). Light hatch of "hoppers" observed in alfalfa field near Hunter, Cass County; M. bivittatus and M. sanguinipes again dominant species. (Frye). MINNESOTA - Egg development in southwest district as follows: M. bivittatus - coagulated to eyespot; M. sanguinipes - clear to early eyespot; M. differentialis and M. femurrubrum - clear to early coagulated. On protected sites, few early segmented M. bivittatus egg pods found. (Minn. Ins. Rpt.). WISCONSIN - Second instars of M. differentialis becoming more common in sandier-textured alfalfa fields in southern area. (Wis. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - More abundant on alfalfa in western area than in previous years at this time. In New Marlbor, 123 adults per 100 sweeps on May 12. (Shaw). NEW YORK - Feeding readily found in many alfalfa fields in Gardiner, Wallkill area of Ulster County on May 6; found in Rondout Valley on May 7. Feeding light and on only a few plants per square yard. (N.Y. Wkly Rpt.). RHODE ISLAND - No adults or eggs collected in several fields checked in Kingston area, Washington County. Apparently fall treatment effective. (Mathewson). DELAWARE - First pupae of season noted on alfalfa in Kent County on May 11. (Burbutis). MARYLAND - Damage to unprotected first-growth alfalfa has been moderate to heavy in all sections. (U. Md., Ent. Dept.). VIRGINIA - Infestations in alfalfa May 5-8 in several southwest counties as follows: Montgomery - light; Russell - very light; Wise - medium; Lee - uninfested to medium; Giles, uninfested to light; Craig - light to heavy; Tazewell - uninfested to very light; Scott - uninfested to heavy; Washington - very light to medium; Smyth - light to heavy; Wythe - light to heavy; Carroll - heavy. Most alfalfa approaching first cutting; recently cut in Giles County. Adults present in all fields checked and many observed mating. (Tarpley). On May 7, larvae averaged 41.3 per square foot pan count in 5 Montgomery County alfalfa fields, Heaviest infestation 66.8 larvae per square foot pan count. Survey of 5 alfalfa fields in Montgomery County on May 14 yielded average of 65.6 larvae per square foot pan count. Highest average count 87.8 for one field. Emergence of new adults starting. (Pienkowski). Observations of alfalfa field margins May 12-14 in Craig, Alleghany, Bath, Augusta, Rockingham, Shenandoah, Frederick, Page, Rockbridge and Botecourt Counties revealed infestations ranged light to severe or

had been recently treated. Most fields approaching first cutting, with cutting already underway in many localities. (Tarpley). GEORGIA - Larvae averaged 2 per 5 sweeps on untreated alfalfa in Franklin County. (Johnson). ALABAMA - Extensive damage to alfalfa reported in Franklin and Lauderdale Counties. Only about 10 percent of fields damaged in Morgan County. Damage continues in Cleburne County. (Ponder, Wagnon, Rutledge and Ventress). ARKANSAS - Adults and larvae collected in Craighead, Greene and Poinsett Counties, northeast. These are new county records. (Ark. Ins. Sur.). MISSOURI - Larvae collected on alfalfa in Bollinger, Wayne, Stoddard, Butler, Ripley and Carter Counties, southeast area. These are new county records. Adults emerging in laboratory from pupae collected in Pemiscot and Dunklin Counties, southeast. (Houser, Thomas, Wood). ILLINOIS - Found in one new county, namely Jasper. None found in Edgar, Clark, Coles, Cumberland, Effingham and Clay Counties. (Ill. Ins. Rpt.). INDIANA - Surveys of 15 alfalfa fields in Knox, Sullivan and Gibson Counties, southwest section, negative. (Bram). OHIO - One adult collected in 150 sweeps of alfalfa near Columbus, Franklin County (central area); a new county record. (Galford). Adult and larval activity reported in Gallia, Meigs, Washington and Lawrence Counties, southern area. Cooperative survey being planned to determine economic populations and new county records. (Galford, Lyon). WASHINGTON - Occasional adult recovered from alfalfa near Pullman, Whitman County. No apparent damage. (Brannon). IDAHO - Early instars noted in alfalfa throughout much of Canyon County; numbers apparently still low. (Bechtolt). UTAH - Active, 0-6 adults per 10 sweeps (average 2), in Layton-Farmington area of Davis County. (Knowlton).

Distribution of Alfalfa Weevil in Arkansas, Missouri & Illinois



CLOVER LEAF WEEVIL (Hypera punctata) - VIRGINIA - Larvae lightly infesting two fields of clover (6-8 per 100 sweeps) in Washington County and one field in Lee County (6 per 100 sweeps). (Tarpley, May 6-8). Larvae severely infesting red clover locally near Chatham, Pittsylvania County. Crop and most of stand completely destroyed. (Tarpley, Blair; May 6). Medium larval infestations in several fields of red and ladino clovers in Fluvanna County; damage to red clover almost severe enough to justify controls. (Watts). INDIANA - Adults ranged 2-15 (average 8) per 10 sweeps on alfalfa in southwest section. (Bram). MISSOURI - Very light in northeast section of State; 0-1 per plant on alfalfa and approximately 50 percent infected with a fungus. Damage very light. (Houser, Thomas, Wood). IOWA - Larvae destroyed new seeding of alfalfa in Union County; probably foremost insect pest of field crops May 4-9. (Ehm, Iowa Ins. Inf.). NEBRASKA - Larvae occasionally found at base of plants in alfalfa in east and northeast areas. (Bergman). UTAH - No damage noted in central area fields. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MISSOURI - An adult swept from red clover in Chariton County, central area. (Houser, Thomas, Wood).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - UTAH - Marking sweetclover foliage in Santa Clara-Hurricane area of Washington County, and at Logan and Wellsville, Cache County. (Knowlton). NEBRASKA - Adults 1-6 per 10 sweeps in east and northeast areas; causing minor leaf damage. (Bergman). SOUTH DAKOTA - Adults reported in alfalfa-sweetcolver field in Beadle County; counts very low, 2 per 100 sweeps. (Hintz). MINNESOTA - Feeding notches very noticeable on roadside sweetclover. Counts in alfalfa ranged 10-20 per 100 sweeps in south central, southwest and central districts. (Minn. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults reported low in alfalfa throughout much of Canyon County. (Bechtolt). WYOMING - Adults averaged 12 per 100 sweeps in Goshen County alfalfa. (Marks). MISSOURI - Adults swept from red clover and alfalfa in central and northeast sections. (Houser, Thomas, Wood). MARYLAND - Adults moderate in sweepings of alfalfa at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Adults collected in every alfalfa-field surveyed; ranged 20-50 per 100 sweeps. (Hintz). NORTH DAKOTA - Observed in alfalfa in most areas of southeast. (Frye).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - First adult flight occurred on May 2 near Parma, Canyon County. (Waters). UTAH - Adults 12 per 100 sweeps in alfalfafield at Kaysville, Davis County. (Knowlton).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - Adults in alfalfa and red clover; averaged 10-20 per 100 sweeps in north central area. (Houser, Thomas, Wood).

A FLEA BEETLE (Phyllotreta sp.) - WYOMING - Adults averaged 60 per 100 sweeps in Goshen County alfalfa. (Marks).

PEA APHID (Acyrthosiphon pisum) - VIRGINIA - Present in all alfalfa and clover checked May 5-8 in southwest area; infestations ranged from very light to light (4-400 per 100 sweeps). (Tarpley). MARYLAND - Averaged over 100 per sweep on alfalfa at Snow Hill, Worcester County. (U. Md., Ent. Dept.). NEW JERSEY - Populations low on alfalfa throughout State, 3-10 per sweep. (Ins.-Dis. Newsltr.). RHODE ISLAND - Parasitized individuals very common in field of alfalfa at Kingston, Washington County. (Mathewson). MICHIGAN - Adults common in alfalfa in Livingston County; considerable parasitism by hymenopterous parasite evident. (Newman, May 8). INDIANA - Nymphs and adults ranged 5-30 (averaged 10) per sweep on alfalfa in Knox, Sullivan, and Gibson Counties, southwest. Ranged 4-11 (averaged 8) per 10 sweeps in Johnson, Hendricks and Boone Counties, central section. (Bram). ILLINOIS - Varied 100-28,000 (averaged 1,193) per 100 sweeps in alfalfa in northern one-half of State. (Ill. Ins. Rpt.). MISSOURI - Light on alfalfa and red clover in northeast and central sections; averaged 100-200 per 100 sweeps. (Houser, Thomas, Wood). WISCONSIN - Averaged about 30 per sweep in alfalfa in Rock, Dane and Green Counties; 5-fold increase over previous week. Specimens noticeably diseased and parasitized and lady beetles very common in more heavily infested fields. Winged forms averaged 1-4 per sweep. Populations in southeastern counties averaged 1-5 per sweep, with winged forms about 1 per 10 sweeps. (Wis. Ins. Sur.). MINNESOTA - Counts 0-60 per 100 sweeps on alfalfa in south central, southwest and central districts. Heavy rain and wind may account for low counts. No winged forms found. (Minn. Ins. Rpt.). NORTH DAKOTA - Trace numbers observed on alfalfa near Linton and Kindred. (Frye). NEBRASKA - Populations very low in northeast, 3-10 per 10 sweeps. (Bergman). KANSAS - Ranged from 5 to about 150 per sweep on alfalfa in south central and southwest areas. Beneficial insects plentiful in all fields observed and alfalfa soon to be cut; therefore, no further damage expected. (Peters). OKLAHOMA - Light, fewer than 25 per 10 sweeps, in southwest area alfalfa. Moderate counts reported from Noble County, north central area. (Okla. Coop. Sur.). TEXAS - Building up on vetch in north central area. (Turney). NEW MEXICO - Becoming lighter in alfalfa in Quay, Curry, Roosevelt, Chaves and Eddy Counties. Decrease probably due to numerous lady beetles and other predators

and parasites. (N.M. Coop. Rpt.). UTAH - Nymphs present but not numerous in Weber and Davis County alfalfa. (Knowlton). ARIZONA - Light in nearly all areas on alfalfa. Heavy damage found in few Graham County fields, but populations have decreased. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Scattered, heavy infestations occurring in some alfalfa in Graham County. Infestations continue light in Yuma, Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.). OKLAHOMA - Light, 0-40 per 10 sweeps, in southwest counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Counts per 100 sweeps on alfalfa by counties 2-3 in Beadle, 56 in Charles Mix, 4 in Lincoln, 8 in Sanborn, 4 in Tripp and 84 in Union. Records for Beadle, Lincoln, Sanborn and Union much earlier than previous years. (Hintz). WISCONSIN - Populations continue 30-40 per sweep in Green-Rock County area on May 12. Most aphids mature, appeared relatively free of disease or parasites and contained embryos. Winged forms continue at about 1 per sweep. The parasite, Trioxys utilis, averaged about 1 per sweep (a decrease from previous week) and recovered in sweepings from Sauk, Rock and Green Counties. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Spittle masses present in most alfalfa and clover checked in Craig, Giles, Tazewell, Russell, Lee, Scott, Washington, Smyth and Wythe Counties; infestations ranged from very light to light. (Tarpley, May 5-8). MARYLAND - Light to moderate nymphal populations occurring on red clover in Queen Annes County. (U. Md., Ent. Dept.). MICHIGAN - Nymphs present on legumes in southern area. (Carpenter, Newman; May 8). INDIANA - Nymphal spittle masses on alfalfa ranged 1-8 per 10 stems in Knox, Sullivan and Gibson Counties, southwest. Averaged 15 per 10 alfalfa stems in Morgan County, central. (Bram). Averaged 3 nymphs per 10 stems on red clover in Porter County, northwest. (Matthew). WISCONSIN - Spittle masses ranged from 1-2 per 10 stems to 3 per stem. Highest concentrations apparently in southwest and southern counties. (Wis. Ins. Sur.). IDAHO - Nymphs observed May 12 at Moscow; first report of season. (Portman).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Few specimens appeared in Dane County blacklight trap week ending May 8; occasional one appearing in southeast area alfalfa. (Wis. Ins. Sur.). ILLINOIS - Adults varied 20-840 (averaged 252) per 100 sweeps in northern one-half of State and 10-380 (averaged 138) in east-southeast district. (Ill. Ins. Rpt.).

A LEAFHOPPER (Psammotettix sp.) - WASHINGTON - Moderately damaging barley and alfalfa in Grandview and surrounding area, Yakima County. All stages observed. (Hagel).

MEADOW PLANT BUG (Leptopterna dolabratus) - MISSOURI - Early instars swept from highway right-of-way in Sullivan County, north central. (Houser, Thomas, Wood).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing slowly in Yuma and Maricopa County alfalfa; averaged 50 per 100 sweeps. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Light to moderate counts, 10-40 per 10 sweeps, present on southwest area alfalfa. (Okla. Coop. Sur.). KANSAS - Present in all alfalfa checked in south central and southwest areas; ranged 30-800 per 100 sweeps. (Peters). MISSOURI - Light on legumes in northeast; 2-40 per 100 sweeps. In southeast average per 100 sweeps 15-25 on alfalfa and 1,000 in field of red clover checked. (Houser, Thomas, Wood). NEBRASKA - Counts 5-10 per 10 sweeps on legumes in northeast. (Bergman). MINNESOTA - Ranged 20-40 per 100 sweeps in south central, southwest and central districts on alfalfa. (Minn. Ins. Rpt.). MARYLAND - Increasing generally in most red clover and alfalfa over State. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults and nymphs appearing in alfalfa in large numbers in Roosevelt, Quay and several fields in northern Eddy Counties. Adults 8-20 and nymphs 15-65 per 25 sweeps in Roosevelt County, 15-30 and 40 to

over 100 per 25 sweeps, respectively, in Quay County and 4-10 adults and 8-25 nymphs per 25 sweeps in northern Eddy County. (N.M. Coop. Rpt.). ARIZONA - Populations continue light in Yuma County, but increasing on alfalfa in Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.). UTAH - Lygus elisus averaged 2 per 10 sweeps on grass and alfalfa in Davis County orchards and in Weber County alfalfa fields. (Knowlton). WYOMING - Adults averaged 24 per 100 sweeps in alfalfa in Goshen County and 19 per 100 sweeps in Platte County alfalfa. (Marks). IDAHO - Adults and first and second instars appearing in alfalfa in Canyon County. Populations still low, but building up. (Bechtolt). WASHINGTON - Small nymphs appearing throughout Columbia Basin from Walla Walla to Quincy on weed hosts such as Cardaria draba, Capsella bursa-pastoris, Sisymbrium altissimum and Descurainia pinnata. These are on borders of field, in fields and in abandoned fields. (Landis).

SUPERB PLANT BUG (Adelphocoris superbus) - ARIZONA - Nymphs occurring on alfalfa in Graham County; averaged 40 per 100 sweeps. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Averaged 25 per 100 sweeps in alfalfa and safflower fields in Graham County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WYOMING - Larvae averaged 2 per 100 sweeps in Goshen and Platte County alfalfa. (Marks). UTAH - Scarce in Davis and Weber County alfalfa. (Knowlton). MISSOURI - Few adults found in alfalfa in northeast section. (Houser, Thomas, Wood). OKLAHOMA - Occasional specimens noted in southwest and north central areas. Considerable adult activity noted in scattered areas of southwest. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Very light on alfalfa and red clover in northeast; 100 per 100 sweeps in southeast. (Houser, Thomas, Wood). OKLAHOMA - Light, scattered populations (1-5 per 10 sweeps) noted in some alfalfa checked in southwest. (Okla. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Moths active in wheat fields in eastern area. (Jenkins). UTAH - Populations have been very light in Cache, Weber, Davis and Salt Lake County alfalfa fields examined this spring. (Knowlton). NEVADA - Heavy populations and damage to alfalfa seed fields in Orovada, Humboldt County; larvae averaged 8-15 per crown. (Lundahl).

VARIEGATED CUTWORM (Peridroma saucia) - TEXAS - Damage to vetch continues over wide part of north central and central areas, but appears to be decreasing slightly in some areas. (Texas Coop. Rpt.). OKLAHOMA - Heavy to severe populations reported from scattered locations throughout eastern one-half of State. (Okla. Coop. Sur.). MISSOURI - Larvae averaged 1-3 per square foot in alfalfa in Carroll County, central area, and 3-5 in southeastern section. (Houser, Thomas, Wood). ARKANSAS - Found in some small grain fields along with Pseudaletia unipuncta. Also appearing in alfalfa in Mississippi County, northeast; one field reported treated. (Ark. Ins. Sur.).

CLOVER MITE (Bryobia praetiosa) - WASHINGTON - Adults and immatures on alfalfa, flixweed and barley in Grandview and Sunnyside areas of Yakima County; infestation heavy, but damage light. (Hagel).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Heavy, localized infestations appearing on Yuma and Graham County alfalfa. (Ariz. Coop. Sur.).

MARCH FLIES - WASHINGTON - Adults of undetermined species common on mustard, alfalfa and grains at Eltopia, Franklin County. (Landis).

SPRINGTAILS - OHIO - Common in sweepings of forage crops in northwest; hundred or thousands of specimens per sweep in some fields. (Lyon).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - First treatment operations of State-Federal suppression program completed May 10. Excellent control of adults in 49,000-acre treated area evident. Population levels dropped immediately from 800+ adults per 100 sweeps to zero per 100 sweeps after treatments. If favorable weather prevails, second treatment program should start around May 20. Egg hatch well underway in research plots in infestation area. New eggs continually being deposited, but most eggs still unhatched. First larva of season found May 7. Most larvae in first stage, but few early hatched larvae present as second stage. Adults most numerous in oat fields. Considerable flight and migration from grass fields occurred May 11, but recent migration slowed because of unfavorable weather. (Boyer, Ruppel).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW JERSEY - Moderate numbers in field of sweet corn in Burlington County. (Ins.-Dis. Newsltr.). DELAWARE - First adults of season present on young corn in areas of Sussex County. (Burbutis).

SEED-CORN BEETLE (Agonoderus lecontei) - OHIO - Most common insect obtained in blacklight trappings in northwest area. (Lyon).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSOURI - Very few adults swept from grasses in north central section of State. (Houser, Thomas, Wood).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Widespread in central and western part of Niagara County; most serious this year. Grub infestation worse than in recent years in the immediate Syracuse area of Onondaga County. Infestations not bad in outlying counties. (N.Y. Wkly. Rpt., May 11).

WIREWORMS - OHIO - Numerous adults of undetermined species collected on sticky trap at Hoytville, Wood County. (Lyon, Treece). NORTH CAROLINA - Conoderus vespertinus fed on germinated kernels of corn (3-4 inch plants) in Sampson County field. Some plants died and living plants apparently in poor condition. Only 65 percent of stand present, but fertilizer injury may have been contributing factor. No feeding on stems observed. (Mount).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Damage to small grains and pastures continues over wide part of north central and central areas. (Texas Coop. Rpt.). ARKANSAS - Widespread outbreak occurred in northeast area, mainly in wheat. Some oat fields infested although oat acreage very low. Counts in Craighead County ranged 3-18 per square foot. Controls applied to many fields; other fields will be treated. (Ark. Ins. Sur.). MISSOURI - Early instars averaged 1-3 per square foot in wheat in Carroll County, central area. No leaf feeding noticeable. Larvae 3-8 per square foot in southeast area in wheat. (Houser, Thomas, Wood). TENNESSEE - Heavy populations found in wheat fields in Dyer, Lake and Obion Counties. Infesting all 30 fields checked. (Maddox, May 12). IOWA - Moths very noticeable. Few larvae found in alfalfa-grass mixtures in Union County. Bluegrass, brome and orchardgrass tall, lush and attractive. This could be good year for armyworm. (Iowa Ins. Inf., May 11). OHIO - Adults collected in a blacklight trap at Hoytville, Wood County, northwest area. (Zimmerman). MARYLAND - Extensive surveys May 11-12 in small grains on lower Eastern Shore proved negative. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Moth catch to May 13 in blacklight trap on Eastern Shore has been even lighter than last year, which was lowest on record. Whether or not this is indicative of a low population or simply result of bad weather and late moth emergence not clear yet. However, based on light infestations of 1960-63, populations expected to remain at same general level. (Hofmaster). MARYLAND - First moths of season caught May 13 in blacklight trap at Berlin, Worcester County. (U. Md., Ent. Dept.). DELAWARE - Adults now emerging in Sussex County, with first adult collected on May 8 in blacklight trap and several egg masses first collected on weeds May 14. (Burbutis). MISSOURI - First moths caught in light trap in Portageville area, southeast. (Houser, Thomas, Wood). ILLINOIS - Pupation progressing rapidly.

Pupation complete in southern area, 40 percent pupated in south central section, 25 percent in central section and 15 percent in north central section. Area in which borers could cause trouble in 1964 lies west of a line from Rockford to Joliet and north of a line from Joliet to Pittsfield. (Ins. Sur. Bull.). MINNESOTA - No development of overwintering larvae observed. (Minn. Ins. Rpt.). NEBRASKA - Fifth instars present in stalks and cobs. No signs of pupation observed. (Bergman).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Adults active in southern area. (Ark. Ins. Sur.).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Few small larvae observed on wheat and alfalfa in southwest. (Peters).

CORN EARWORM (Heliothis zea) - ALABAMA - Young corn over southern area now being attacked in bud or whorl by first to third-stage larvae. Adults observed depositing eggs on corn in Henry County; 50 percent of 18-20 inch plants infested in one 10-acre field. (Seibels et al.). MISSOURI - One moth caught in light trap in Portageville area, southeast. (Houser, Thomas, Wood).

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Larvae injuring young corn plants in areas of Sussex County and a few adults collected in blacklight trap in same county. (Burbutis).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Controls applied to wheat in Kit Carson and Kiowa Counties in fields with 5-8 larvae per linear foot. Wind and drought will be responsible for losses in southeastern area. (Jenkins).

CUTWORMS - ALABAMA - Light numbers (first instar to pupa) present and causing light damage to oats and rye over widespread area of Baldwin County. (Wilson). Heavily damaged isolated grass lawn in Guntersville, Marshall County. (Murphy).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Light to moderate on barley and wheat in Snow Hill area of Worcester County. (U. Md., Ent. Dept.). ARKANSAS - Very general in wheat in northeast; ranged from low numbers to 5-600 per 100 sweeps. (Ark. Ins. Sur.). MISSOURI - Very light in northeast, 10-40 per 100 sweeps on wheat. (Houser, Thomas, Wood). INDIANA - Adults and nymphs ranged 2-10 (averaged 6) per 10 sweeps on rye in Johnson, Morgan, Boone and Clinton Counties, central section. (Bram). WISCONSIN - Ranged as high as 1 per sweep in grain in northern Iowa County, although most fields had average of 3 per 100 sweeps. Few appearing in more advanced oat fields. (Wis. Ins. Sur.). WASHINGTON - Nymphs, apterous and alate forms of this species and Rhopalosiphum padi numerous on oats grown as cover crop in Puyallup Valley, Pierce County. (Coudriet). NEBRASKA - Light on wheat in eastern area. (Bergman).

GREENBUG (Schizaphis graminum) - WISCONSIN - Few nymphs and an occasional winged form found in wheat and rye in Green County; none found in oats. (Wis. Ins. Sur.). MINNESOTA - Small numbers found in small grain plots at University of Minnesota Agriculture campus in St. Paul. (Minn. Ins. Rpt.). SOUTH DAKOTA - Averaged 2-5 per 20 sweeps on small grains in southeastern area. (Hintz). NEBRASKA - Counts in wheat and oats in east and northeast areas less than 1 to 3 per 10 sweeps. (Bergman). KANSAS - Counts of this species and Macrosiphum avenae ranged 0-10 per foot of row in wheat and barley in south central and southwest areas. Beneficial insects numerous. No late greenbug damage expected. (Peters).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light to moderate in whorls of young grain sorghum in scattered areas of southwest. (Okla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - MISSOURI - Very few noted on wheat in southeast. (Houser, Thomas, Wood). OKLAHOMA - Moderate numbers reported in small grains and sorghum in Craig County, northeast. None noted in fields checked in southwest. (Okla. Coop. Sur.).

CHINCH BUGS - NEW YORK - Appeared in bent grass lawns in Riverhead area of Suffolk County. (N.Y. Wkly. Rpt., May 11).

SPITTLEBUGS - ALABAMA - Nymphs quite active on grasses and pasture weeds in Mobile, Dallas and other southern area counties. (Seibels et al.). GEORGIA - Prosapia bicincta averaged 3 per square foot on coastal Bermuda grass in Brooks County. (Byers).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Counts 6 per 100 sweeps in grain fields in Kenosha County previous week; 1-4 per 100 sweeps in most grain fields in southern area current week. (Wis. Ins. Sur.). MINNESOTA - Counts in alfalfa and small grains high for time of year; ranged 40-100 per 100 sweeps. (Minn. Ins. Rpt.). NORTH DAKOTA - Remains low in southern area. (Frye). SOUTH DAKOTA - Continues to increase on small grains and alfalfa; ranged 28-650 per 100 sweeps. (Hintz). NEBRASKA - Ranged 1-6 per 10 sweeps in wheat in east areas. (Bergman). WASHINGTON - Nymphs and adults light on fall rye and winter barley at Sunnyside and Grandview, Yakima County. (Hagel).

WHEAT CURL MITE (Aceria tulipae) - SOUTH DAKOTA - Wheat streak mosaic, transmitted by this species, found throughout winter wheat-growing areas of State. Counties surveyed and percent of prevalence of mosaic in these areas as follows: Hand, Hyde, Hughes, Stanley, southern Haakon - trace to 20 percent; northern Haakon, eastern Pennington, Jackson and Washabaugh - trace to 40 percent; Bennett, Shannon and Fall River - trace to 5 percent; Meade and Lawrence - trace to 5 percent; and Perkins, Dewey, Walworth, Potter, Faulk - none to 80 percent. (Wood, Novotny).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Light, spotted infestations noted in wheat fields near Portales, Roosevelt County. (N.M. Coop. Rpt.). COLORADO - Present in most wheat areas in eastern area; 10-30 per linear foot of row. Controls not recommended where severe drought conditions prevail. (Jenkins). UTAH - Very light in dryland wheat west of Riverton, Salt Lake County. (Knowlton).

AN ERIOPHYID MITE (Aculus dubius) - RHODE ISLAND - Common on timothy in Kingston, Washington County. (Kerr).

A SPIDER MITE (Oligonychus stickneyi) - FLORIDA - Severely infesting Bermuda grass pasture at Keystone, Hillsborough County. (Baker, Storms; Apr. 27).

WINTER GRAIN MITE (Penthaleus major) - MISSOURI - Reported to have destroyed a soil fertility test plot of orchardgrass in Wright County, south central. Damage reported in only 2 isolated spots in southern area this season and both on orchardgrass. (Houser, Thomas, Wood).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Wheat stem breakage beginning to occur in susceptible varieties in Ottawa County, north central; 1-5 percent of stems broken. (Somsen).

WHEAT STEM MAGGOT (Meromyza americana) - SOUTH DAKOTA - Adults collected throughout eastern two-thirds of State on grassy alfalfa and small grains; counts never exceeded 2-5 per 25 sweeps. (Hintz).

THRIPS (Chirothrips spp.) - ARIZONA - Light infestations appearing on Bermuda grass in Yuma County. (Ariz. Coop. Sur.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - TEXAS - Numerous mounds present in Washington County pastures; as many as 5 mounds per acre reported. (Texas Coop. Rpt.; McClung).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Heavy, local populations in grain sorghum and pastures in Washington County; causing considerable concern to landowners. (Texas Coop. Rpt.; McClung).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - WASHINGTON - Adults collected from bait and sex attractant traps in White Swan, Yakima County. (Butt). COLORADO - No adults taken in traps in Clifton, Palisade and Fruita areas, Mesa County. Most in pupal stage in Mesa County. (Bulla). MICHIGAN - First pupation of season in Van Buren County cage May 1. First emergence of adults expected week of May 16. (Wooley, Carpenter). INDIANA - Adults began emerging in survey emergence traps at Lafayette, Tippecanoe County, May 14. (Matthew). OHIO - First adults of season emerged during period May 8-11 in Wooster, Wayne County. (Forsythe). DELAWARE - First adult emergence occurred May 10 in cage in Kent County. (MacCreary).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Adults taken in bait traps in Palisade area, Mesa County. (Anderson). Confined mainly to Mount Lincoln area around Palisade. Preliminary counts show gravid females taken in traps in past few days. (Bulla). MISSOURI - Peach twigs showing larval damage in southeastern area. Most larvae full grown but some very young larvae also present. (Wkly. Rpt. Fr. Grs., May 13). NEW JERSEY - Surveys in unsprayed peach orchards in Gloucester County revealed 54 specimens on May 7, 14 on May 11 and 46 on May 14 in Pitman. In Glassboro, on same dates, counts were 2, 12 and 23. No specimens collected at either place on May 4. (Ins.-Dis. Newsltr.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Light in Ulster County compared with this time other years. Few adults observed in Columbia County. Eggs noted in Oswego County; first of season found May 4 in Wayne County; very difficult to find in Monroe County; found occasionally in Niagara County, although generally scarce. (N.Y. Wkly. Rpt., May 11). MARYLAND - Light in most orchards in western area. (U. Md., Ent. Dept.). MICHIGAN - Eggs found May 1 hatched May 9 in Berrien County; new eggs in Berrien and Van Buren Counties on May 4 hatched May 12. Egg laying continues in southwest area and small larvae webbing apple leaves. (Carpenter).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Larvae easily found on untreated trees. (Savos, May 13). NEW YORK - Few specimens observed in Columbia County. (N.Y. Wkly. Rpt., May 11). COLORADO - Larvae noted on apple and ash at Denver, Denver County. (Swingle Tree Serv.).

PEACH TREE BORER (Sanninoidea exitiosa) - MICHIGAN - Few pupae found in southwest area May 5; extremely early date for pupation in State. (Wooley, Carpenter). UTAH - Several peach trees conspicuously infested in Ogden area, Weber County. (Knowlton).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MISSOURI - Considerable injury showing in orchard in southeastern area; most orchards with winter injury in last 2 seasons also infested. (Wkly. Rpt. Fr. Grs.).

PEACH TWIG BORER (Anarsia lineatella) - NEW MEXICO - Caused considerable damage to peach trees in Tucumcari area, Quay County. (N.M. Coop. Rpt.). COLORADO - Now pupating in peach orchards in Mesa County; no adults taken in light traps to date. (Bulla).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Larvae easily found on untreated trees. (Savos, May 13). RHODE ISLAND - Larvae, probably this species, generally present on untreated apple trees in Kingston, Washington County. (Mathewson).

BUD MOTHS - NEW YORK - Eggs hatched May 5 in Clinton County. (N.Y. Wkly Rpt.).

A NOCTUID MOTH (Sunira bicolorago) - OHIO - Larvae light and confined mostly to southern area around Cincinnati; attacking foliage of cherry and plum. (Rings).

CLIMBING CUTWORMS (Eupsilia spp.) - OHIO - Populations throughout State much higher than normal. Quite common on apple, peach, cherry and plum trees. Larvae cannot be separated to species. Previous rearings showed most to be E. morrisoni, with some E. sidus. (Rings).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - INDIANA - Tents readily observed in abandoned apple trees in Porter County; larvae about five-eights inch long, probably fourth instar (Matthew); pupated from Lawrence County southward in southwestern section (Bram).

CANKERWORMS - CONNECTICUT - Not found; injury very noticeable this time in 1963. Injury may be light this year. (Savos, May 13).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae reported in Bantam, Litchfield County. (Savos, May 13).

PLUM CURCULIO (Conotrachelus nenuphar) - WISCONSIN - Adults began appearing in Dane County May 7. (Wis. Ins. Sur.). MICHIGAN - First adults of season jarred from stone fruit trees in Livingston County May 5. (Newman). Adults active on stone fruits in southwest area. (Carpenter, Newman). NEW JERSEY - Surveys in unsprayed peach orchards in Gloucester County revealed 14 specimens May 4; 24 on May 7; 30 on May 11; and 22 on May 14 in Pitman. Glassboro for same dates, counts were 11, 14, 20 and 19. (Ins.-Dis. Newsltr.).

A WEEVIL (Conotrachelus crataegi) - CONNECTICUT - Collected on unsprayed tree at Storrs, Tolland County. (Savos, May 16).

SHOT-HOLE BORER (Scolytus rugulosus) - NEW MEXICO - Caused considerable damage to peach trees in Tucumcari area, Quay County. (N.M. Coop. Rpt.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Adults caused conspicuous foliage injury to apple trees near woodlands at Hancock, Washington County. (U. Md., Ent. Dept.).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Not very abundant presently. (Savos, May 13). NEW YORK - Light in Ulster County compared with other years at this time. Numbers large in few isolated orchards in Columbia County. Many eggs hatched in orchard in Oswego County on May 7. Numerous in untreated orchards in Wayne County; 135-150 within 1-inch diameter area on leaf. Hatched very rapidly in Monroe County May 6-7. Nearly all hatched in inland Orleans County May 7 with lake zones a couple days behind. (N.Y. Wkly. Rpt., May 11). DELAWARE - First eggs of season noted locally in Kent County. (MacCreary). MARYLAND - Causing noticeable bronzing in some apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.). MISSOURI - Heavy in apple orchard in southeast area; apparently concentrated in one part of orchard. (Wkly. Rpt. Fr. Grs., May 13). MICHIGAN - Egg laying underway in Berrien County May 12; generally higher than usual for this time. (Carpenter). MINNESOTA - Egg hatch noted in orchards at Rochester, Olmsted County; careful inspection urged. (Minn. Ins. Rpt.).

A FRUIT-TREE MITE (Bryobia rubrioculus) - UTAH - Active on apple trees at Lehi, Utah County. Hatch beginning in orchards at Layton, Davis County. (Knowlton).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Few infestations observed in southern Berrien County apple orchards on sandy sites. (Carpenter).

PEAR RUST MITE (Epitrimerus pyri) - OHIO - Recorded for first time in State; deutogynes heavy on twigs in commercial pear orchard April 16 at Geneva, Ashtabula County. Det. by H. H. Keifer. (Forsythe).

ROSY APPLE APHID (Anuraphis rosea) - NEW YORK - Light in Ulster County compared with other years at this time. Controls apparently very effective in Monroe County; no injury seen. (N.Y. Wkly. Rpt., May 11). OHIO - Stem mothers actively reproducing on Golden Delicious apple trees near Fredericksburg, Wayne County. (Cutright). CALIFORNIA - Nymphs and adults heavy on apple trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Problem on peach foliage at Tucumcari, Quay County. (N.M. Coop. Rpt.). UTAH - Present but not numerous in Weber County orchards. (Knowlton).

BLACK CHERRY APHID (Myzus cerasi) - MICHIGAN - Colonies causing some problems. (Carpenter, Sowerby).

APPLE APHID (Aphis pomi) - NEW YORK - Stem mothers reproducing on May 6 in Clinton County. (N.Y. Wkly. Rpt.). MISSOURI - Few, scattered throughout most orchards in southeast area. (Wkly. Rpt. Fr. Grs., May 13). UTAH - Present but not numerous in Weber County orchards. (Knowlton).

WATERLILY APHID (Rhopalosiphum nymphaeae) - CALIFORNIA - Heavy on French prune trees in Richfield, Tehama County. (Cal. Coop. Rpt.).

APHIDS - CONNECTICUT - Low abundance throughout State; due possibly to weather and predators rather than controls. (Savos, May 13). NEW YORK - Building up on some untreated trees in Nassau County. (N.Y. Wkly. Rpt., May 11). MICHIGAN - Generally lighter on fruits. (Carpenter, Sowerby). UTAH - Few present on plum at Farmington, Davis County. (Knowlton).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs hatched in Glastonbury, Hartford County, and Storrs, Tolland County. Egg laying underway on leaves at Storrs. (Savos, May 13). MICHIGAN - Hatch appears largely completed in southwestern area; no nymphs with wing pads found. (Carpenter).

TARNISHED PLANT BUG (Lygus lineolaris) - CONNECTICUT - Present but not serious. (Savos, May 13).

SAN JOSE SCALE (Aspidiotus perniciosus) - OHIO - Light on neglected apple trees near Fredericksburg, Wayne County. (Cutright).

PEAR THRIPS (Taeniothrips inconsequens) - UTAH - Present in cherry and plum blossoms in Weber and Davis Counties. (Knowlton).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Adults very active in Storrs, Tolland County, since May 10; control after petal fall recommended. (Savos).

CURCULIOS - MINNESOTA - First adults of unspecified species found May 13 in southeastern area. Controls recommended. (Minn. Ins. Rpt.). NEW JERSEY - First adults observed on blueberries on May 10; few egg punctures found May 12 in Weymouth blueberries in Atlantic County; controls recommended where curculios a problem. (Ins.-Dis. Newsltr.).

AN ANOBIID BEETLE (Ozognathus cornutus) - CALIFORNIA - Adults and larvae light in bark of loquat trees in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

LEAF ROLLER MOTHS - MINNESOTA - Inspection for eggs urged. (Minn. Ins. Rpt.). NEW JERSEY - Adults now active on blueberries. (In.-Dis. Newsltr.).

A CRANBERRY TIPWORM (Dasyneura vaccinii) - NEW JERSEY - Activity noted in unflooded cranberry bogs but still too early for insect activity on winter-flooded bogs. (Ins.-Dis. Newsltr.).

A WEEVIL (Conotrachelus aratus) - FLORIDA - Larvae medium in shoots of pecan. Few adults present at time of first spray on April 8; no adults found week of May 4-8. Infestation spreading rather rapidly; this is first time this species taken in budwood block in one of the large commercial nurseries. Although first reported in State in mid-twenties, this weevil was not observed until 1962. Found more in pecan nurseries than in bearing trees in Monticello area, Jefferson County. (Phillips).

A WALNUT LACE BUG (Corythucha juglandis) - MISSOURI - Adults infesting walnut trees in Cape Girardeau County. (Houser, Thomas, Wood).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Adults depositing eggs; first instars collected on Hicon nuts (cross of hickory and pecan) at Monticello, Jefferson County. (Phillips, May 8).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - MISSOURI - Terminal buds of pecan trees in Carroll County (northeast) 20-30 percent infested. (Houser, Thomas, Wood).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Nymphs heavy on walnut trees in Five Points, Fresno County. (T. Brown).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium on orange trees in Exeter, Tulare County. (Cal. Coop. Rpt.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Heavy locally on orange trees in Winters, Yolo County, and in Porterville, Tulare County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults heavy and caused severe damage in many fields of newly transplanted tomatoes in Snow Hill area, Worcester County. Heavy egg laying observed. (U. Md., Ent. Dept.). VIRGINIA - Large numbers of overwintering adults moved into potato fields on Eastern Shore; egg hatch underway. Also infested considerable acreage of tomatoes. (Hofmaster). GEORGIA - Moderate on potatoes in Chatham County. (Vanderford, May 8). ALABAMA - Larvae and adults observed in most areas of State feeding on potatoes; appear more widespread and damaging than in 1963. Controls used in most gardens. (Barwood et al.). MISSOURI - Small numbers of larvae on potatoes in southeast area. (Harrendorf, Jones).

THREE-LINED POTATO BEETLE (Lema trilineata) - DELAWARE - Adults present on small planting of potatoes locally in Sussex County. (Burbutis). ALABAMA - Few adults on beans in Tuscaloosa County. (Cooper et al.).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Present on potatoes throughout State; on tomatoes in Kent and Sussex Counties. (Burbutis).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Medium on tomato plants in Selma, Fresno County. (Cal. Coop. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults averaged 60 per 100 sweeps on matrimony-vine; tomato and potato growers warned. (Jenkins).

GREEN PEACH APHID (Myzus persicae) - COLORADO - No winged specimens collected in traps in Platteville nor in Pierce, Weld County. (Simpson, Berry). DELAWARE - Few alates now present on peppers in seedbeds locally in Sussex County. (Burbutis).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Thorough survey on May 11 of 4 locations in Monroe County known infested in 1963 revealed no evidence of infestation. Inspection of volunteer potato plants negative for all stages of pest. No adults taken in 2 blacklight traps in area. (Newman).

CUTWORMS - NEW YORK - Reported on tomatoes in Niagara County. (N.Y. Wkly. Rpt., May 11). GEORGIA - Caused light damage to pimento peppers in Piedmont area, especially where green litter turned under. (Cates).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium on tomato plants in Hinkley, San Bernardino County. (Cal. Coop. Rpt.).

HORNWORMS - GEORGIA - Light on tomatoes in south central area. (Ratcliffe).

PILLBUGS - IOWA - Damaged potatoes in garden in Black Hawk County. (Iowa Ins. Inf., May 11).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - IOWA - Adults abundant around light at Ames, Story County, May 7. Controls recommended. (Iowa Ins. Inf.). ALABAMA - Overwintered adults heavy and attacking watermelons in Baldwin County; 25 adults per plant in some fields with egg laying in progress. (Wilson).

CUCUMBER BEETLES - NEW JERSEY - Controls urged to control bacterial wilt vectors. (Ins.-Dis. Newsltr.).

SQUASH BUG (Anasa tristis) - TEXAS - Heavy on watermelons in Washington County. (Hamman).

MELON APHID (Aphis gossypii) - ARIZONA - Generally light on vegetables in Yuma County. (Ariz. Coop. Sur.).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Eggs found in field planting on early soil in Niagara County. (N.Y. Wkly. Rpt., May 11). NEW JERSEY - Two trap boards at Cedarville, Salem County, yielded 2 adults May 7 and 1 on May 14; none collected April 30. In Great Meadows, Warren County, 4 traps yielded 57 adults on May 14. (Ins.-Dis. Newsltr.). MARYLAND - Caused heavy injury to over 8 acres of cabbage at Severn, Anne Arundel County. (U. Md., Ent. Dept.).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Several adults noted on May 5 and 6 in Ontario County. (N.Y. Wkly. Rpt., May 11). NORTH DAKOTA - Adults first observed May 9 at Fargo, Cass County; following week from Fargo to Bottineau, Bottineau County. (Noetzel). Adults noted in all areas of southeast. (Frye).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Caused light to heavy damage to 58 percent of cabbage plants of 200 sampled at Sanford, Seminole County; very young larvae numerous. (Desin).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - First adults of season present on snap beans locally in Sussex County. (Burbutis). MARYLAND - First adults of season found May 11 injuring garden snap beans at Snow Hill, Worcester County. (U. Md., Ent. Dept.). GEORGIA - Moderate on beans in Chatham County. (Vanderford, May 8).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Continues leaving hibernation at rather high rate over entire State. Egg laying and larval feeding quite general on lima and snap beans and field peas. (Granberry). GEORGIA - Moderate on beans in Chatham County. (Vanderford, May 8).

ALFALFA WEEVIL (Hypera postica) - NORTH CAROLINA - Adults damaged most of 60 feet of pole peans near recently cut field of alfalfa in Caswell County. (Jones). Migrating adults feeding on various garden vegetables in Rockingham County. (Turner).

COWPEA CURCULIO (Chalcodermus aeneus) - TEXAS - Heavy on southern peas in lower Rio Grande Valley. (Deer).

PEA APHID (Acyrthosiphon pisum) - WISCONSIN - Winged specimens appearing in pea fields in Dane, Rock and Sauk Counties. (Wis. Ins. Sur.). MINNESOTA - None found on canning peas. (Minn. Ins. Rpt.). DELAWARE - Considerably increased on peas in most areas of Sussex County; ranged 5-20 per sweep in untreated fields. (Burbutis).

THRIPS - GEORGIA - Light on snap beans in Tattnall County. (Cates).

ASPARAGUS BEETLES (Crioceris spp.) - NEW YORK - Very active in Erie County; may ruin quality of stalks this year. (N.Y. Wkly. Rpt., May 11). DELAWARE - First adults of C. duodecimpunctata of season noted on asparagus foliage in Sussex County. (Burbutis). MICHIGAN - Adults of C. asparagi and C. duodecimpunctata causing heavy injury in southwest area; more rigid controls needed than in 1963. Egg laying and feeding injury widespread in southern counties. (Carpenter, Newman). WISCONSIN - Adults of C. asparagi mating and laying eggs on asparagus spears in Dane County; C. duodecimpunctata adults also noted. (Wis. Ins. Sur.).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Eight trap boards in Cedarville, Salem County, yielded 96 adults April 30; 193 on May 7 and 195 on May 14; 4 traps in Great Meadows, Warren County, yielded 8 adults on May 14. (Ins.-Dis. Newsltr.).

MAGGOTS - NEW YORK - Controls for adults started week of May 4 in Orange County. Numerous cull onion piles nearby indicated potential for heavy maggot population. (N.Y. Wkly. Rpt., May 11).

WHEAT CURL MITE (Aceria tulipae) - IDAHO - Heavy infestation on onions grown from bulbs in field near Parma, Canyon County, probably this species. All stages present and leaves of more heavily infested onions exhibit "rippled" appearance. (Scott).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Medium on garlic in Smith Valley, Lyon County. (Batchelder).

ONION ROOT MITES - NEW YORK - Damage continued to increase in Orange County. (N.Y. Wkly. Rpt., May 11).

HOP FLEA BEETLE (Psylliodes punctulata) - UTAH - Damaging young sugar beets in number of fields in Garland-Tremonton-Penrose area of Box Elder County. (Knowlton, Finch).

A BUD MITE (Aceria peucedani) - IDAHO - Heavy infestation on young carrot seed plants in field near Parma, Canyon County, probably this species. Many plants exhibit high degree of distortion of leaves resembling sublethal herbicide effects. (Scott).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - Adults quite active and eggs hatching; in field in Hammonton, Atlantic County, 14 percent of new leaves and 4 percent of old leaves had newly hatched larvae. (Ins.-Dis. Newsltr.). MISSOURI - Few specimens reported in north central and southeastern areas. (Wkly. Rpt. Fr. Grs.).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Adults caused noticeable injury in 2 strawberry fields at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - NEW JERSEY - Winged specimens observed May 10; controls recommended. (Ins.-Dis. Newsltr.).

SPITTLEBUGS - NEW YORK - First specimens of season noted April 30 in Erie County; easily found in warm sand and gravel on May 6. (N.Y. Wkly. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CONNECTICUT - Active on strawberries; inspection and controls recommended. (Savos, May 16).

MITES - MISSOURI - Some rather extensive acreages of strawberries in southeast heavily infested and damaged by undetermined species. (Wkly. Rpt. Fr. Grs.). Noted also in Callaway County, central. (Houser, Thomas, Wood). NEW JERSEY - Have not built up seriously on strawberries except in untreated fields. (Ins.-Dis. Newsltr.).

EASTERN RASPBERRY FRUITWORM (Byturus rubi) - RHODE ISLAND - Light feeding damage suggests this species on raspberry; no specimens seen. Noted in plantings in Kingston and Peace Dale, Washington County. (Mathewson).

APHIDS - WISCONSIN - Specimens collected on raspberries in Bayfield County on September 28, 1963, determined as Aphis rubicola, a vector of raspberry leaf curl; Amphorophora rubi, a vector of raspberry mosaic; and Masonaphis sp. (Wis. Ins. Sur.).

FLEA BEETLES - NEW YORK - Becoming active in cabbage seedbeds in Ontario County. Building up in Niagara and Erie Counties. (N.Y. Wkly. Rpt., May 11). MARYLAND - Epitrix spp., mostly E. hirtipennis, heavy and causing typical injury to unprotected potatoes and newly transplanted tomatoes on lower Eastern Shore. (U. Md., Ent. Dept.). UTAH - Damaging young sugar beets at Orem, Utah County. (Knowlton). NEVADA - Heavy infestations and damage to seedling sugar beets in Lovelock, Pershing County. (Ferraro).

POTATO APHID (Macrosiphum euphorbiae) - CALIFORNIA - Medium on watermelon vines in Clovis, Fresno County. (Cal. Coop. Rpt.). MARYLAND - Light on tomatoes in Wicomico and Worcester Counties. (U. Md., Ent. Dept.).

LEAFHOPPERS (Empoasca spp.) - ARIZONA - Heavy, localized infestations causing concern to vegetable growers in Yuma County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Very high numbers found near woods in Erie County. (N.Y. Wkly. Rpt., May 11).

TOBACCO INSECTS

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Damaged 2 acres of tobacco in Sampson County near Clinton severely enough to require resetting of entire field. Farmers reported that 27 of 30 plants examined were damaged. Caused extensive damage in Sampson County field and field near Wallace in Duplin County. Several reports each from Sampson, Duplin and Jones Counties noted; not found in Onslow County. (Mount).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - SOUTH CAROLINA - Damage extremely heavy in some areas. (Nettles et al.).

A HORNWORM - GEORGIA - Eggs light to moderate on tobacco in south central area. (Johnson, May 6).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - None found in 26 fields inspected in McLennan and Falls Counties. One weevil collected on flight screens on May 15. Two emerged from hibernation cages containing field collected weevils installed in October 30, 1963. (Cowan et al.). MISSISSIPPI - Three more males collected from trap plants set out in field in delta area. One additional weevil (male) removed from screen cages. (Pfrimmer). ALABAMA - Live weevils found in 2 to 5-leaf cotton in south central and southeast areas. (McQueen).

THURBERIA WEEVIL (Anthonomus grandis thurberiae) - ARIZONA - Three adults collected on cotton seedlings during surveys last week in Pinal County. (Ariz. Coop. Sur.).

PALE-STRIPED FLEA BEETLE (Systena blanda) - ALABAMA - Some light, scattered leaf feeding from underside of cotton leaves observed in Morgan County. (McQueen).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Warming temperatures in Safford area of Graham County have increased moth emergence in experimental cages. (Ariz. Coop. Sur.). TEXAS - Infestations appearing in Rio Grande Valley; 60-90 larvae per acre near Le Feria and 10 per acre near Santa Rosa. (Texas Coop. Rpt.; Deer). FLORIDA - Severely infesting wild cotton at Ft. Myers, Lee County. (Robnett).

BOLLWORM (Heliothis zea) - TEXAS - Larvae continue to be found on such host plants as wild mustard, spiderwort, wine cup, alfalfa, Indian paintbrush and corn in McLennan and Falls Counties. Two larvae found in one field of cotton and 3 in another. (Cowan et al.).

BOLLWORMS (Heliothis spp.) - ALABAMA - Light to moderate infestation in 2 to 4-leaf cotton in 2 Dallas County fields. Numerous eggs observed in one field. (McQueen et al.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light in some Maricopa, Pinal and Pima County cotton. (Ariz. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - An unusual infestation of first-stage larvae exists in a 10-acre field of cotton in Tuscaloosa County. One to two larvae could be found on stalks of 2 to 3-leaf cotton plants in scattered sections of field. Situation unexplainable. (McQueen).

CUTWORMS - ARIZONA - Heavy infestations occurring in isolated areas of Marana and Sahuarita in Pima County. Damage severe enough in some fields to necessitate replanting. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - ALABAMA - Heavy and damaging on some farms in Tuscaloosa County and rather heavy infestation observed locally in Escambia County with as many as 11 per leaf. (McQueen, Lemons). TEXAS - Light to heavy infestations reported from wide area of northern and north central sections. (Texas Coop. Rpt.). ARIZONA - Generally light on cotton in Graham and Maricopa Counties; averaged 25-35 per 100 plants. (Ariz. Coop. Sur.).

APHIDS - MISSISSIPPI - Most numerous insect pests in 29 cotton fields sampled in delta area. Infestations heavy in 10 fields, medium in 1 field and light in 18 fields. Average number per plant 4.26. Severe injury observed in a few fields. (Pfrimmer et al.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations present in most cotton fields in Rio Grande Valley. (Texas Coop. Rpt.; Deer). In McLennan and Falls Counties, adults found in 20 of 22 untreated fields and nymphs in 6 fields. Infestation averaged 3.5 per 100 linear feet of row with maximum of 21.8. Found in 3 of 4 treated fields with range of 0-21 per 100 linear feet of row. (Cowan et al.). ALABAMA - Few observed in Henry and Dallas Counties. (McQueen).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Sporatic, heavy infestations found in Pinal, Maricopa and Pima Counties. Most areas have light to moderate infestations. (Ariz. Coop. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - ARIZONA - Heavy populations causing some damage to cotton seedlings in areas of Maricopa County. (Ariz. Coop. Sur.).

THRIPS - GEORGIA - Light to moderate infestations on cotton in northeastern area. (Johnson). MISSISSIPPI - Infestations in 29 delta area fields as follows: Light in 23 and none in 6. Average number per plant in infested fields, 0.2. (Pfrimmer et al.). TEXAS - Infestations in 26 untreated fields in McLennan and Falls Counties as follows: Light in 5, medium in 12 and heavy in 9. In 6

treated fields, light in 3 and none in 3. (Cowan et al.). ARIZONA - Frankliniella spp. light to moderate on cotton in Yuma, Pinal, Maricopa and Graham Counties. Some fields in Maricopa County have very heavy populations. (Ariz. Coop. Sur.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Scattered populations causing some damage to cotton in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

ADDITIONAL NOTES

MISSISSIPPI - ARMYWORM (Pseudaletia unipuncta) heavy in some north delta counties; foliage cut from wheat and oats and in some fields grain cut from heads. Infestations spotty but number of fields being treated. HORSE FLIES annoying livestock in delta area. Many cattlemen treating livestock for control of TICKS and HORN FLY (Haematobia irritans). (Bennett).

INTERCEPTIONS

A TICK (Amblyomma dissimile) - MISSOURI - Found in Boone County on pet iguana imported from South America. (Wingo, May 8).

CORRECTIONS

CEIR 14(18):415 - A BRUCHID (Bruchus signaticornis Gyll.) - Note should read as follows: "...(central European and Mediterranean pest of lentils) in baggage at J. F. Kennedy International Airport, New York, and at Detroit, Michigan."

CEIR 14(19):432 - ALFALFA CATERPILLAR (Colias eurytheme) - ALABAMA - Delete note. (McQueen).

CEIR 14(19):442 - DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Lines 7, 8 and 9 should be changed to read as follows: "... Of 71 cocoons examined, moths had emerged from 62 and remainder contained parasitized or diseased pupae. In addition, 3 old and 42 new egg masses were observed. Populations of this tussock ..." (Tunnock et al.).

CEIR 14(19):442 - PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Last line should be changed to read: "... phenomenon occurred April 24 last year. (Wis. Ins. Sur.)."

CEIR 14(20):461 - GRASSHOPPERS - Line 15 (NORTH DAKOTA) - Should read: "... bee flies found in 1 percent of pods, ..."

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Spring survey showed overwintering survival of 20 percent. This much higher than previous year. Populations appeared highest in Manitowoc, Kewaunee and Sheboygan Counties. (Wis. Ins. Sur.). MICHIGAN - Larvae numerous in some Livingston County Christmas tree plantations of Scotch pine; entire populations in larval stage, as determined by 25-twig sample taken May 5. (Newman).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Larvae in second stage in Polk County on May 5. (Wis. Ins. Sur.).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Larvae mostly in second stage May 7 in Douglas County, although few third stage present. (Wis. Ins. Sur.).

JUNIPER WEBWORM (Dichomeris marginella) - DELAWARE - Larvae damaging junipers in northern New Castle County. (Burbutis).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Active infestations found in Hardin, Jasper, Polk and Tyler Counties. Controls applied to 7 spots containing 75 trees in Tyler County. In other counties, spots consisted of 1-2 trees. Landowners continuing control operations. Surveys since January show increase in activity by this species. (Texas For. Pest Comm., Apr. Rpt.; Williamson).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - No additional infestations reported during April. (Texas For. Pest Comm.; Williamson).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Mortality in loblolly pines caused by local populations of I. avulsus, I. grandicollis and I. calligraphus reported on Bastrop State Park, Bastrop County. Most of infestation concentrated in one area of park, although additional spots of 5-10 infested trees located. (Texas For. Pest Comm., April Rpt.; Williamson).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Crawlers noted May 5 in Dane County. First noted last year at same site on April 14. (Wis. Ins. Sur.). NEW YORK - Noted around pine buds in Niagara County. (N. Y. Wkly. Rpt., May 11).

EASTERN SPRUCE GALL APHID (Chermes abietis) - CONNECTICUT - Overwintering nymphs fully grown. Eggs present under small cottony masses now visible on terminal twigs. A problem in East Hartford and Danbury. (Savos).

A WOOLLY LARCH APHID (Chermes strobilobius) - OHIO - Abundant on larch at Wooster, Wayne County (northeast). (Neiswander, Lyon).

PINE SPITTLEBUG (Aphrophora parallela) - MARYLAND - Heavy on many young Virginia pines in Greenbelt regional park, Prince Georges County. (U. Md., Ent. Dept.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - ILLINOIS - Heavy on Mugho pine in Champaign County. Eggs hatching. (Appleby). OHIO - Crawlers observed on spruce in Butler County (southwest). Many eggs and embryos still found under old scales. (Cooley).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Examination of scales on May 7 in Bayfield County revealed no eggs. Lady beetles common and mating in area. (Wis. Ins. Sur.).

BALSAM GALL MIDGE (Cecidomyia balsamicola) - WISCONSIN - Adults ovipositing in Langlade County May 11. This is about one week earlier than in 1963. (Wis. Ins. Sur.).

GALL MIDGES - COLORADO - Laying eggs on buds of ponderosa pines in foothills west of Fort Collins, Larimer County. (Borg).

CONIFER SAWFLIES - NEW JERSEY - Unspecified species active on pines. (Ins.-Dis. Newsltr.). VIRGINIA - Neodiprion pratti pratti rather heavy on shortleaf and loblolly pines over large portion of Lunenburg County. (Powers, May 6). Larvae of same species defoliating Virginia and shortleaf pines, and some loblolly pines, over most of Fluvanna County. Appears to be more abundant than in 1963. (Watts). NORTH CAROLINA - N. pratti pratti increased in severity in Orange, Alamance, Guilford, Forsyth and Rockingham Counties and possibly adjoining counties. Severity of defoliation remains about same as past several years in Warren, Vance, Granville and Person Counties. Entire infestation apparently somewhat scattered, with local areas of few trees in several acres moderately defoliated. (For. Pest Newsltr.). MICHIGAN - Neodiprion sertifer larvae moderate to heavy in Livingston, Oakland, Monroe and Sanilac Counties. (Newman, Sowerby).

SPRUCE SPIDER MITE (Oligonychus ununguis) - CONNECTICUT - Active and will require control. (Savos). MARYLAND - Heavy on spruce at Bel Air, Harford County. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KANSAS - Severe defoliation of trees and shrubs noted in Pottawatomie County, northeast. (Elzinga). VIRGINIA - Tents very conspicuous on wild cherry and other favored hosts; larvae causing considerable defoliation in most southwest counties visited. (Tarpley, May 8). Common throughout Henrico County; migrating onto shrubs and fruit trees, causing concern to homeowners. (Davis, May 7). Tents very conspicuous on wild cherry and other hosts throughout northern area; larvae causing considerable defoliation in Craig, Alleghany, Bath, Augusta, Rockingham, Botetourt, Rockbridge and Roanoke Counties. (Tarpley). NEW JERSEY - Light to medium on wild cherry throughout State. (Ins.-Dis. Newsltr.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - COLORADO - Third-stage larvae present on choke cherry in Larimer County (Thatcher); reported on flowering crab apple in Denver (Swingle Tree Service). UTAH - Infestations increased in Washington County, chiefly along Virgin River drainage. (Knowlton). NEVADA - Larvae generally light on desert peach (Prunus andersoni) in southern Washoe County. (Coop. Rpt.).

TENT CATERPILLARS - CONNECTICUT - Larvae reported from many parts of State. (Savos). NEW YORK - Population appears very low on ornamentals in Nassau County; building webs in Suffolk County. (N. Y. Wkly. Rpt., May 11).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - Feeding noticeable on elms near Mazomanie and at Brodhead. Larvae in second stage and numerous on some trees. (Wis. Ins. Sur.). IOWA - Not evident in Shenandoah, Clarinda and Wapello, where controls applied in 1963. Larvae average less than one per leaf in Bedford, where controls also applied in 1963. Infestations very heavy in Hamburg; controls anticipated. Infestation light in Harlan, but heavy in Avoca, Council Bluffs and Ottumwa; medium in Red Oak. Infestations variable in Indianola, Knoxville and Oskaloosa. (Iowa Ins. Inf., May 11). MISSOURI - Larvae causing moderate damage to wild cherry and elm in central and northern areas. (Houser, Thomas, Wood).

CANKERWORMS - NEW YORK - Eggs hatching in Suffolk County. (N. Y. Wkly. Rpt., May 11). NEW JERSEY - Quite heavy in several areas of State. (Ins.-Dis. Newsltr.). MINNESOTA - Causing concern to homeowners in suburban areas north of Minneapolis and St. Paul. This same general area where heavy infestations occurred in 1963. Feeding becoming more apparent; larvae mostly in second and third stages. (Minn. Ins. Rpt.). NORTH DAKOTA - Eggs hatching in southeast; small larvae feeding on foliage of lower branches of shade trees. (Frye).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Many "ballooning" larvae found in alfalfa in Berkshire County; fields in area where infestations on forest trees were heavy in 1963. (Shaw). RHODE ISLAND - Winter survey indicates

egg counts rather high in parts of Warwick, Kent County, and in Lincoln and Cranston, Providence County. Spraying at these and other locations underway since mid-April. (Veilleux, Mathewson). CONNECTICUT - Larvae reported from many parts of State. (Savos).

LEAF ROLLERS - NEW JERSEY - Quite heavy on oaks in several areas of State. (Ins.-Dis. Newsltr.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Heavy larval populations defoliating elms in Lafayette, Contra Costa County, and Chinese hackberry in Woodland, Yolo County. (Cal. Coop. Rpt.). UTAH - Adults more numerous than normal in northern part of State. (Knowlton, Cazair).

ELM LEAF BEETLE (Galerucella xanthomelaena) - COLORADO - Beginning to feed on elms in Mesa County; controls recommended. (Bulla). KANSAS - Egg masses present on small Chinese elms in Manhattan, Riley County (northeast); moderate adult feeding damage also noted. (Thompson). OKLAHOMA - Larval feeding noted in western Jackson County (southwest) and adult feeding and egg laying noted in Rocky area of Washita County, both on American elm. Activity continues in remainder of State, with chemical controls initiated. (Okla. Coop. Sur.). MISSOURI - Eggs hatched in Boone County (central), and egg laying underway in Knox County (northeast). Adult activity moderate to heavy in Boone County. (Houser, Thomas, Wood). IOWA - Reported from Sioux City May 5. Overwintered adults flying to elms. Has been spreading in Sioux City for past 3-4 years. (Iowa Ins. Inf.). VIRGINIA - Larvae feeding on elm at a location in Rocky Mount, Franklin County. (Rowell, Tucker; May 4).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - VIRGINIA - Adults and larvae feeding on willow on Virginia Polytechnic Institute campus at Blacksburg. (Kulman, May 8). RHODE ISLAND - Few adults noted on willow in Exeter and Kingston, Washington County. (Mathewson).

A LEAF BEETLE (Crepidodera erythropus) - VIRGINIA - Adults infesting Chinese elms at a location in Blacksburg, Montgomery County. (Tarpley, Pienkowski; May 1).

ELM BORER (Saperda tridentata) - IOWA - Pupae present under bark of dead elms in central area of State. (Iowa Ins. Inf., May 11).

BRONZE BIRCH BORER (Agrilus anxius) - INDIANA - Killed approximately 12 trees in cemetery planting in Tippecanoe County. (Schuder).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - KANSAS - Adult emergence from overwintering brood in American elm ended May 8 in Riley County (northeast). (Thompson).

RED ELM BARK WEEVIL (Magdalis armicollis) - IOWA - Larvae and pupae collected May 7 near Ames, Story County, from elms which died of Dutch elm disease during summer of 1963. (Iowa Ins. Inf.).

A WEEVIL (Dorytomus inaequalis) - CALIFORNIA - Adults heavy on cottonwood trees in Marysville, Yuba County. (Cal. Coop. Rpt.).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - DELAWARE - Alates noted on Norway maples in New Castle County. (Burbutis).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - KANSAS - Overwintering females produced eggs on American elm and died May 1-11 in Riley County (northeast). (Thompson).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adults present and some eggs hatched in Kingston, Washington County. Adults abundant in Greenville, Providence County. Presumably the same over the State. (Mathewson, King).

CONNECTICUT - Adults active and laying eggs for more than a week. (Savos). NEW JERSEY - Heavy on birch in central counties. Mines visible. (Ins.-Dis. Newsltr.). DELAWARE - First small mines noted in birch leaves May 12 in New Castle County. (Burbutis). MICHIGAN - Larval mines indicative of infestation observed May 11 in Oakland County. (Wooley).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - WISCONSIN - Galls on upper leaf surface of silver maples noticeable and becoming prevalent. (Wis. Ins. Sur.). VIRGINIA - Galls heavy on leaves of maples at a location in Amelia, Amelia County (Rowell, Holmes), and at McLean, Fairfax County (Rowell). MARYLAND - Severe on young silver maple at Delmar, Wicomico County. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Heavy on cedar in De Kalb County. (Blasingame). ALABAMA - General hatch occurred over entire State; large numbers of first and second-stage larvae feeding where trees and shrubs survived 1963 infestations. (McQueen). OKLAHOMA - Activity widespread over State. (Okla. Coop. Sur.). OHIO - No hatch noted to May 12. (Cooley).

STALK BORER (Papaipema nebris) - ALABAMA - Few larval infestations in dahlia and weed plants noted in Lee, Tallapoosa, Clay, Coosa and Talladega Counties. (Barwood et al.).

IRIS BORER (Macronoctua onusta) - CONNECTICUT - Infesting iris at Wilton. (Savos).

A PLUME MOTH (Platyptilia pica) - OHIO - Severe feeding and boring damage estimated at 90 percent of 20,000 geranium plants observed in Mahoning and Stark Counties (northeast). Larvae and pupae principal stages found. (Delly).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - CALIFORNIA - Extremely heavy on pines, oaks, loquat and other trees locally in Antioch, Contra Costa County. (Cal. Coop. Rpt.).

A TUSSOCK MOTH - NEVADA - Young larvae of undetermined species (most first stage) present on bitterbrush (Purshia tridentata) in Steamboat area, Washoe County. (Bechtel).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Larvae heavy on yews in Middletown, Newport County. (Mathewson, Peabody). INDIANA - Causing considerable damage on nursery and ornamental plantings of yew in Lake County, northwest. (Schuder).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Adults of this species and Amphicerus cornutus (a twig borer) heavy in and on trunks of mulberry nursery stock in Needles, San Bernardino County. (Cal. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Larvae common in flower beds in section of Richmond. (Davis, May 10).

APHIDS - WASHINGTON - Cinara winonkae heavy on Thuja occidentalis in Yakima, Yakima County; foliage covered with honeydew. Det. by B. J. Landis. (Keene). CALIFORNIA - Prociphilus fraxinidipetalae adults heavy on ash trees in Tulare, Tulare County. Periphyllus testudinacea heavy on maples in Berkeley Botanical Gardens in Berkeley, Alameda County. Periphyllus californiensis medium on dwarf Japanese maple nursery stock in Millbrae, San Mateo County. (Cal. Coop. Rpt.). NEVADA - Periphyllus negundinis heavy on boxelder in Reno-Sparks area, Washoe County. (Lauderdale). MARYLAND - P. negundinis heavy on boxelder and Aphis gossypii curling terminal leaves of flowering quince at College Park, Prince Georges County. Drepanaphis acerifoliae infesting maples at 2 locations in same county. (U. Md., Ent. Dept.). DELAWARE - Macrosiphum euphorbiae common on some roses in northern New Castle County. (Burbutis).

COCCIDS - RHODE ISLAND - What are presumably immature forms of Lecanium fletcheri, very abundant on yew and ilex in Middletown, Newport County. (Peabody, Mathewson). CONNECTICUT - Lepidosaphes ulmi infesting lilac at Simsbury, Storrs and Willimantic, and pyracantha at Simsbury. (Savos). MARYLAND - Aspidiotus perniciosus heavy on pyracantha at College Park and Pulvinaria sp. infesting same host at Adelphi, Prince Georges County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Fiorinia theae more prevalent than usual on ornamentals this season. (Nettles et al., May 12). GEORGIA - Toumeyella liriodendri infesting Japanese magnolia in Cook County. (Smith, Apr. 29). F. theae heavy on camellia in Fulton County. (Coleman). FLORIDA - Pseudaulacaspis pentagona severe on stems and leaves of Escallonia rosea at Leesburg, Lake County. (Brown, Bentley; Apr. 29). Saissetia oleae light on leaves of Aucuba japonica at Raiford, Union County. (Collins, May 4). Cerococcus sp. general and moderate on Hibiscus sp. at North Miami, Dade County. (Hickman, May 6). Aspidiotus cyanophylli light to moderate on leaves of Liriope sp. at Groveland, Lake County. (Henderson, May 5). Diaspis carueli locally severe on stems and leaves of Juniperus sp. at Pine Castle, Orange County. (Crews, May 5). Phenacaspis cockerelli locally severe on stems and leaves of Aucuba sp. at Longwood, Seminole County (Youtsey, May 4), and moderate on Magnolia sp. at Okahumpka, Lake County (Fatic, May 6). INDIANA - L. ulmi hatched and settled 10-14 days earlier than normal in central part of State. (Schuder). CALIFORNIA - Stomococcus platani heavy on sycamores in Santa Barbara, Santa Barbara County. Aspidiotus camelliae adults heavy on camphor trees in Campbell, Santa Clara County. (Cal. Coop. Rpt.).

A FLATID PLANTHOPPER (Metcalfa pruinosa) - ALABAMA - Increasing in Mobile County; nymphs have been feeding on various shrubs and trees since May 1. (Seibels).

BOXWOOD PSYLLID (Psylla buxi) - VIRGINIA - Heavy on over 100 boxwood plants at a location in Bridgewater, Rockingham County (May 8), and on same host at a location in Roanoke (May 10). (Rowell).

THRIPS - UTAH - Frankliniella occidentalis common on blossoms in flower gardens in Washington County. (Knowlton). CALIFORNIA - Ankothrips yuccae heavy on Yucca whipplei in Poway, San Diego County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - OHIO - Infesting holly in Akron, Summit County (northeast). (Holdsworth).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - GEORGIA - Adults active on boxwood in Fulton and De Kalb Counties. (Blasingame).

AN ERIOPHYID MITE (Nalepella tsugifoliae) - RHODE ISLAND - Caused unthrifty symptoms on hemlock nursery stock in South Kingstown, Washington County, April 1. Determination confirmed by H. H. Keifer. This is a new State record. (Mathewson, Kerr).

A RUST MITE (Aculus ligustri) - CALIFORNIA - Nymphs and adults heavy on privet in Los Altos, Santa Clara County. (Cal. Coop. Rpt.).

SPIDER MITES - FLORIDA - Tetranychus yusti and Panonychus citri general and severe on leaves of rose at Okahumpka, Lake County. (Fatic, May 6). Tetranychus telarius general and local to moderate on leaves of hollyhock at West Hollywood, Broward County. (McLean, Apr. 27). MISSOURI - Unspecified species infesting spruce in Clay County (west central) and juniper in Boone County (central). (Houser, Thomas, Wood). NEVADA - Unspecified species light to medium on various ornamental junipers in Reno, Washoe County. (Bechtel). CALIFORNIA - Eotetranychus libocedri adults heavy on false-cypress in Millbrae, San Mateo County. (Cal. Coop. Rpt.).

MILLIPEDS - IDAHO - Numerous and damaging roots of flowers. (Bechtolt).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

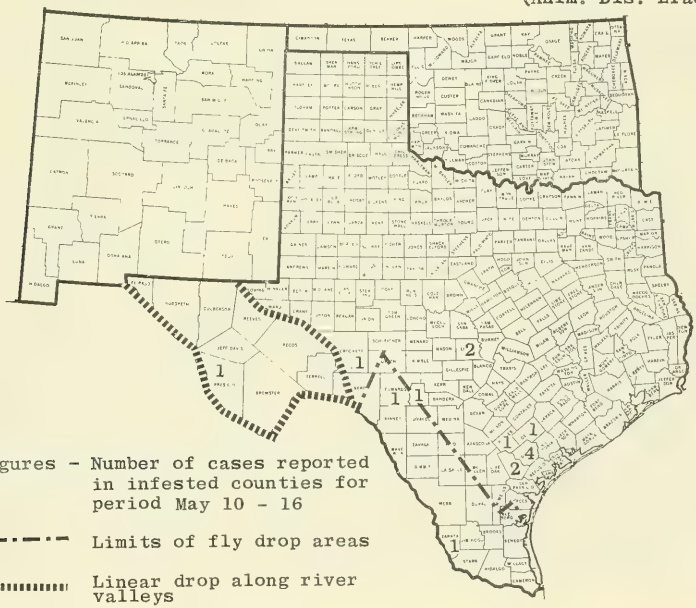
During the period May 10 - 16, a total of 15 screw-worm cases was reported from TEXAS. This is the largest number of cases reported for any week during this year. Counties reporting first screw-worm cases this year were Llano (2), Zapata (1) and Presidio (1). The Republic of Mexico reported 63 screw-worm cases from the States of Sonora (20), Chihuahua (4), Coahuila (6), Nuevo Leon (4), Tamaulipas (28) and Durango (1). A total of 90,287,050 sterile screw-worm flies was released: 24,959,250 in Texas, 678,000 in New Mexico, 100,000 in Arizona and 64,549,800 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963:

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,150	6,224	128	1,263	8,984:1,000	4,928:1,000
1963	132	890	317	2,757	416:1,000	323:1,000
1964	15	57	253	2,850	50:1,000	20:1,000

* The number of screw-worm cases is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in numbers of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 10 - 16

Limits of fly drop areas

Linear drop along river valleys

MOSQUITOES - FLORIDA - Aedes sticticus general and lightly annoying to humans at Torreya State Park, Liberty County. Overall biting rate low, but general and causing some annoyance. (Mead; Fla. Coop. Sur.). MARYLAND - Aedes sollicitans adults biting on Deal Island, Somerset County. Larvae and pupae abundant in marsh where ditching incomplete at same locality. (U. Md., Ent. Dept.). DELAWARE - Aedes vexans common and annoying in several areas of State. (Burbutis). OHIO- Culex restuans third and fourth-stage larvae present in woodland pools. Females of Culiseta inornata and Culex restuans collected in Toledo, Lucas County (northwest). (Brockway). INDIANA - Aedes spp. causing unusual annoyance throughout State due to severe spring rains. (Bram). IOWA - Larvae of unspecified species abundant in pools in roadside ditches and in low areas as a result of recent rains. (Iowa Ins. Inf., May 11). MICHIGAN - Adult populations of various species much lighter to date than during recent years; very low water table this spring considered largely responsible. (Burger, Newman). MINNESOTA - Total of 1,666 larval samples taken in Metropolitan Mosquito Control District during week ending May 9. Culiseta inornata present in 42 percent of collections, Aedes spp. in 40 percent, Aedes vexans in 23 percent, A. cinereus in 18 percent, A. excrucians in 7 percent, A. canadensis in 6 percent, A. fitchii in 3 percent and A. abserratus in 3 percent. Total of 16 species taken. Light trap operation began May 10. Male and female C. inornata collected; few A. vexans and Culex spp. also taken. In the 6-county area, rains on May 5, 6, 8, 11 and 12 ranged 2.0-3.5 inches; some hatch occurred May 9, 11 and 12. St. Croix, Minnesota and Mississippi Rivers approached flood stage; resulted in inundation of some adjacent lowlands. Heavy Aedes spp. hatch resulted in some of these flooded areas. (Minn. Ins. Rpt.). NORTH DAKOTA - Aedes fitchii and Aedes spencerii adults collected early this period; Aedes vexans and A. flavescens larvae slightly less than one per dip. Culiseta spp. also collected, but not abundant. (N.D. Ins. Sur.). KANSAS - Larvae and pupae of Culiseta impatiens and Culex tarsalis abundant in small, grassy pools with cattails in Riley County (northeast). (Knutson). TEXAS - Adult mosquitoes plentiful during April throughout Jefferson County area. Dispersal flights held at minimum due to strong winds which held adults in tall grass and brush. Intense populations existed in several areas in and adjacent to county. Considerable adult Culex salinarius populations existed in marsh areas; larvae also present. Psorophora confinnis and P. ciliata larvae common in rice-growing areas of county; Aedes sollicitans and C. salinarius larvae plentiful in saltmarsh areas. Light trap samples showed high populations of C. salinarius in Port Arthur area; species also present elsewhere. Aedes vexans common in Beaumont area. (Texas Mosq. Control Comm.; April Rpt.). UTAH - Mosquito outlook more serious than normal in many northern areas due to continued rains and snow. Few Culiseta inornata adults taken in Salt Lake City abatement area. Larvae taken in twice as many pools during April as during same period in 1963; chiefly Aedes dorsalis. Aircraft spraying more extensive than in previous years. (Collett, Knowlton). Adults appeared in Farmington-Bountiful area, Davis County. Larvae numerous in some Box Elder County areas. Mosquitoes troublesome at Corinne, Bear River City and Brigham City, Box Elder County; some annoyance reported at Benson and Logan, Cache County. (Knowlton).

FACE FLY (Musca autumnalis) - MICHIGAN - Adults averaged 10 per animal in Holstein herd in Shiawasee County May 3; counts of 25+ made on backs of animals infested with cattle grubs (Hypoderma spp.) where exudate served as attractant. (Dowdy, May 8). Adults moderate in Sanilac County; very scarce on rainy days, reappearing during warm, sunny weather. (Sowerby). ILLINOIS - Populations still very low; 0-3 per face in Knox County. (Ill. Ins. Rpt.). INDIANA - Observed resting on sides of barns in Porter County (northwest), on May 12; first observation in area this season. Counts averaged less than one per animal. (Matthew). Averaged 2 per face in Sullivan County (southwest), and less than one per face in Johnson County (central area). (Bram). MISSOURI - Averaged 1-2 per head on cattle in Bethany area, Harrison County (north central); only flies around face counted. (Houser, Thomas, Wood). VIRGINIA - Adults averaged 15 per head on beef herd in Bland County (May 5) and 8 per head in large dairy herd near Warm Springs, Bath County (May 12). (Tarpley)

HOUSE FLY (Musca domestica) - WISCONSIN - Appearing earlier than normal; reports from scattered areas indicate no particular pattern. (Wis. Ins. Sur.). OKLAHOMA - Counts light in Stillwater area, Payne County. (Okla. Coop. Sur.).

LITTLE HOUSE FLY (Fannia canicularis) - INDIANA - Adults emerging and problem populations developing around unsprayed poultry houses in Kosciusko County (north central). (Matthew).

HORN FLY (Haematobia irritans) - VIRGINIA - Adults averaged 100 per head on beef herd in Bland County. (Tarpley, May 5). GEORGIA - Averaged 106.3 per head on untreated herd of dairy animals in Spalding County, May 8; averaged 3.3 per head on treated animals. Averaged 203 per animal in second untreated herd May 14. (Roberts). ALABAMA - Heavy and a problem on cattle in Bibb County; heavy on herd in Wilcox County. (Odom, Alsobrook). OKLAHOMA - Populations increased considerably in Payne County; moderate to heavy numbers reported in McCurtain, Bryan and Cotton Counties. Light on cattle in southwest areas. (Okla. Coop. Sur.). MISSOURI - Infestations light throughout northeast and north central sections. (Houser, Thomas, Wood). INDIANA - Ranged up to 300 per head on untreated cattle in Tippecanoe County; however, average considerably lower. (Dobson).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Appearing earlier than normal. Reports from scattered areas show no particular pattern. (Wis. Ins. Sur.). IOWA - First of season noted at Ames, Story County, May 7. (Iowa Ins. Inf.). OKLAHOMA - Occasional flies noted on animals in Stillwater area, Payne County; first of season. (Okla. Coop. Sur.).

BLACK FLIES - WISCONSIN - Large numbers present and biting in Green and Dane Counties May 12. Troublesome in Calumet and Vilas Counties. (Wis. Ins. Sur.). MICHIGAN - Adults of unspecified species biting residents of Allegan County. (Burger). RHODE ISLAND - Unspecified species occasionally reported biting, but no evidence of special localized problems. (Mathewson). ALABAMA - General buildup of Simulium spp. over State. Larvae and pupae of S. decorum heavy at ponds and lake outlets in Lee, Barbour, Russell and Conecuh Counties. (Snoddy, Dixon). S. venustum, S. vittatum and S. pictipes heavy in streams in east central area of State; Simulium sp. also heavy in area. S. tuberosum and Simulium sp. very heavy in Baldwin, Escambia and Conecuh Counties. (Snoddy). Simulium spp. probably caused death of 6 pair of breeding quail in Monroe County; causing considerable damage to other quail and confined chickens in same county. (Lemmons).

DEER FLIES (Chrysops spp.) - ALABAMA - Adults quite heavy and annoying in southern part of State; light numbers appearing in central area. (Watson, Barwood, et al.).

SHEEP KED (Melophagus ovinus) - NEBRASKA - Infestations light in small farm flocks. (Bergman).

CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - High percentage of larvae in native cattle approaching full growth, as indicated by large size and dark color; apparently few had left host animals to May 15. (Dowdy). OKLAHOMA - H. lineatum adult activity virtually ceased in north central area. (Okla. Coop. Sur.).

MASKED HUNTER (Reduvius personatus) - IDAHO - Nymph noted in home in Saint Maries, Benewah County, May 8. (Judd).

SWALLOW BUG (Oeciacus vicarius) - IDAHO - Infested home at Crouch, Boise County, May 8. (Portman).

FLEAS - TEXAS - Moderate to heavy numbers in localized area of Washington County causing concern to homeowners; some controls being applied. (Texas Coop. Rpt.; McClung). OKLAHOMA - Ctenocephalides canis and C. felis causing considerable concern in Stillwater area, Payne County, by becoming active in homes. (Okla. Coop. Sur.).

WASPS AND HORNETS - CONNECTICUT - Causing concern to many homeowners. (Savos).

AMERICAN DOG TICK (Dermacentor variabilis) - RHODE ISLAND - Reported active from Burrellville, Providence County, and Little Compton, Newport County. (Mathewson, King). ALABAMA - Noted as numerous along field borders in Tallapoosa, Clay, Coosa and Talladega Counties. (Barwood). OKLAHOMA - Active in western two-thirds of State; causing concern to picnickers. (Okla. Coop. Sur.). MISSOURI - Heavy about farm home in Knox County (northeast). (Houser, Thomas, Wood). IOWA - First report of season from Woodbury County, probably this species. (Iowa Ins. Inf., May 11). WISCONSIN - Reports indicate above normal populations, especially in northern counties. (Wis. Ins. Sur.). CALIFORNIA - Populations light in Rancho Cordova area, Sacramento County. Specimen taken from child. (Cal. Coop. Rpt.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - COLORADO - Unusually high numbers (14 per person) being reported by picnickers in the Cache la Poudre River area, Larimer County. (Colo. Ins. Det. Comm.). UTAH - Noted on horse at Ogden, Weber County. (Knowlton).

BROWN DOG TICK (Rhipicephalus sanguineus) - ARIZONA - Increasing in Casa Grande area of Pinal County; causing much concern to many homeowners. (Ariz. Coop. Sur.). OKLAHOMA - Becoming annoying in homes in Stillwater area, Payne County (East central). (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Large populations present in eastern third of State. (Okla. Coop. Sur.).

CHICKEN MITE (Dermanyssus gallinae) - CONNECTICUT - Severe on poultry at Lebanon. (Savos).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - Troublesome to homeowners statewide. (Savos). NEW YORK - Troublesome to homeowners in Monroe County. (N.Y. Wkly. Rpt., May 11). NEW JERSEY - Very active in several areas of State. (Ins.-Dis. Newsltr.). MICHIGAN - Adults still annoying homeowners in southern counties; some heavy populations in grassy areas also observed. (Janes). WISCONSIN - A problem in Brown, Green Lake, Waukesha, Winnebago, Outagamie and Trempealeau Counties. (Wis. Ins. Sur.). UTAH - Entering homes in several Weber County communities. (Knowlton).

A FAN PALM MOTH (Litoprosopus coachella) - CALIFORNIA - Heavy larval numbers occurred in clothing, drapes and papers in nursery in Chowchilla, Madera County. Species is periodically a serious pest in homes and business establishments, tearing up materials in search of pupation sites. (Cal. Coop. Rpt.).

A GRASS BUG (Arhyssus scutatus) - CALIFORNIA - Heavy numbers causing extensive nuisance in electrical equipment in broadcasting station in Alturas, Modoc County. (Cal. Coop. Rpt.).

A MILLIPED - GEORGIA - Entering basements and carports at several locations in Atlanta; causing concern to residents. (Johnson).

SUBTERRANEAN TERMITES - CONNECTICUT - Reticulitermes flavipes troublesome to homeowners statewide. (Savos). RHODE ISLAND - R. flavipes alates continue to emerge statewide. (Mathewson, Veilleux). NEW JERSEY - R. flavipes continues to cause much concern. (Ins.-Dis. Newsltr.). VIRGINIA - Adults of unspecified species present in large numbers around school in New Castle, Craig County. (Rowell, Lester; May 4). IOWA - Winged sexual forms of R. flavipes noted in Oakland, Pottawattamie County. (Iowa Ins. Inf., May 11). MISSOURI - Reticulitermes spp. reported swarming in Knox County, northeast. (Houser, Thomas, Wood).

A DRYWOOD TERMITE (Incisitermes snyderi) - FLORIDA - Flight to lights noted in Gainesville, Alachua County, May 8. Collected and determined by L. A. Hetrick as Kalotermes snyderi. (Fla. Coop. Sur.).

CARPENTER ANTS - CONNECTICUT - Unspecified species a problem in homes at Meriden, Storrs, Woodstock and Ashford. (Savos).

A POWDER-POST BEETLE (Lyctus cavicollis) - CALIFORNIA - Destroying bamboo basket in residence in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

BROADBEAN WEEVIL (Bruchus rufimanus) - CALIFORNIA - Heavy in soybean seed in Upper Lake, Lake County. (Cal. Coop. Rpt., May 8).

BENEFICIAL INSECTS

LADY BEETLES - NEW YORK - Active in Monroe County. (N.Y. Wkly. Rpt., May 11). VIRGINIA - Hippodamia convergens, Coccinella novemnotata, Coleomegilla maculata lengi and Hippodamia parenthesis abundant in all alfalfa and clover checked in Montgomery, Craig, Giles, Tazewell, Russell, Wise, Lee, Scott, Washington, Smyth, Wythe and Carroll Counties. (Tarpley, May 8). OKLAHOMA - Large numbers of H. convergens larvae and adults noted in most alfalfa, small grain and sorghum checked in Tillman, Jackson, Harmon, Greer and Kiowa Counties. (Okla.Coop. Sur.). MISSOURI - Few adults of H. convergens and C. novemnotata noted in alfalfa and small grains in northern portion of State. Larvae of H. convergens recovered from wheat in Chariton County, central area. (Houser, Thomas, Wood). KANSAS - Various species, primarily H. convergens, abundant in alfalfa and wheat fields in south central and southeast areas. (Peters). INDIANA - H. convergens adults ranged 5-9 per 10 sweeps on alfalfa in Knox, Sullivan and Gibson Counties, southwest. (Bram). ILLINOIS - Adults of several species varied 0-150 (average 35) per 100 sweeps in alfalfa in northern half of State. (Ill. Ins. Rpt.). MICHIGAN - Various species active around aphid colonies. (Wooley, Sowerby). SOUTH DAKOTA - Adults of unspecified species present in all fields surveyed; ranged 5-17 per 100 sweeps. (Hintz). WYOMING - Adults of several species appearing in alfalfa and small grains in Goshen and Platte Counties; ranged 2-10 per 100 sweeps. (Marks). UTAH - Four species noted in alfalfa in Weber and Davis Counties. (Knowlton).

DAMSEL BUGS (Nabis spp.) - UTAH - Largely N. ferus, noted in alfalfa examined in Weber and Davis Counties. (Knowlton). OKLAHOMA - Light to moderate in most alfalfa checked in southwest area. (Okla. Coop. Sur.). KANSAS - Abundant in alfalfa and wheat fields in south central and southeast areas. (Peters). SOUTH DAKOTA - Adults present in all fields surveyed. (Hintz). ILLINOIS - Adults varied 0-40 (average 5.3) per 100 sweeps in alfalfa in northern half of State. First nymphs of season observed in east-southeast district. (Ill. Ins. Rpt.). OHIO - N. ferus most abundant beneficial species in red clover-alfalfa forage fields in State. Averaged 8-10 per 25 sweeps. (Lyon). VIRGINIA - Adults of several species abundant in all alfalfa and clover checked in southwest counties. (Tarpley, May 8).

A FLOWER BUG (Orius insidiosus) - KANSAS - Abundant in fields of wheat and alfalfa in south central and southeast areas of State. (Peters).

LACEWINGS - UTAH - Adults present in Weber and Davis County alfalfa. (Knowlton). SOUTH DAKOTA - Adults noted in all fields surveyed. (Hintz). KANSAS - Abundant in wheat and alfalfa in south central and southeast areas. (Peters). MISSOURI - Few adults swept from wheat in northwest area. (Houser, Thomas, Wood). ILLINOIS - Chrysopa oculata adults varied 0-20 (average 3) per 100 sweeps in alfalfa in northern half of State. First larvae of season noted in east-southeast district. (Ill. Ins. Rpt.). INDIANA - C. oculata adults ranged 1-3 per 10 sweeps on alfalfa in southwest section; C. carnea adults averaged 2 per 100 sweeps on same crop in Sullivan County. (Bram).

A PARASITIC TACHINA FLY (Hyalomya aldrichii) - CALIFORNIA - Medium populations noted in oats in Wildomar, Riverside County. (Cal. Coop. Rpt.).

SYRPHID FLIES - UTAH - Three species present in alfalfa examined in Weber and Davis Counties. (Knowlton).

HONEY BEE (Apis mellifera) - MINNESOTA - Apiary inspections underway. Early reports indicate colonies wintered quite well, with good percentage appearing quite strong as of first week in May. Supplies of pollen now available. Swarming may be a problem, provided warm weather for buildup continues. (Minn. Ins. Rpt.). RHODE ISLAND - Considerable winter loss reported. (Mathewson).

ICHNEUMONS - OHIO - An undetermined species most abundant beneficial insect taken in blacklight traps in northwest area; 30 collected in one night. (Zimmerman, Lyon). CALIFORNIA - Extremely heavy flights of Netelia leo arizonensis noted in Quartz Hill area of Antelope Valley, Los Angeles County. (Cal. Coop. Rpt.).

A PREDACEOUS MITE (Typhlodromus occidentalis) - WASHINGTON - Adults and eggs noted on apple at Wenatchee, Chelan County, and at Orondo, Douglas County; reducing numbers of eggs and adults of Tetranychus mcdanieli. (Hoyt).

MISCELLANEOUS INSECTS

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Taken in Miami, Dade County, May 4. (Brown). Severe on leaves of following new hosts: Bombax sp.; sapodilla (Achras zapota); peach (Prunus persica); Bahama lysiloma (Lysiloma bahamensis); Lake Emerald grape (Vitis sp.); shaving-brush tree (Pachira sp.); Hibiscus rosa-sinensis cv. LaFrance; Jeruselem-thorn (Parkinsonia aculeata); pomegranate (Punica granatum); Barbados-cherry (Malpighia glabra); powder-puff (Calliandra californica); Acacia seyal; silver-leaf pumpwood (Cecropia palmata);egg plant (Pouteria campechiana var. nervosa); Florida soapberry (Sapindus marginatus; jambolan-plum (Syzygium cumini); sausage-tree (Kigelia pinnata); and Dombeya sp. (Fla. Coop. Sur.).

A LEAF BEETLE (Gastrophysa cyanea) - ALABAMA - Caused heavy feeding damage on curly leaf dock over much of State in pastures and orchards. Det. by E. U. Balsbaugh. (McCay).

A DERMESTID BEETLE (Trogoderma simplex) - NEVADA - Larvae light in trap nests of Megachile rotundata in Mustang area, Washoe County. (Bechtel).

WEEVILS - WISCONSIN - Adults of Brachyrhinus ovatus and Sciaphilus asperatus began emerging in Langlade County. (Wis. Ins. Sur.)

CALLIPHORID FLIES - NORTH DAKOTA - Large numbers observed on waste honeycomb. Not ovipositing in decaying animal remains at present. (Frye).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Adults heavy and feeding on loco weed on Lemoore Naval Air Station, Kings County. (Cal. Coop. Rpt.).

SILKY ANT (Formica fusca) - VIRGINIA - Four large colonies detected locally near Chatham, Pittsylvania County (Tarpley, Blair, May 6) and single colony with mound 10 feet in diameter and 6-8 inches high encountered on farm near Blackstone, Nottoway County (Tarpley, Cassell, May 1).

SALT-MARSH CATERPILLAR (Estigmene acrea) - OHIO - Many specimens collected in blacklight traps in northwestern area. (Lyon).

LIGHT TRAP COLLECTIONS

	Temperature F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chortagrotis auxiliaria (dusky cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feronia diffusa (sugar beet armyworm)	Falsia sutterensis (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commutalis (alfalfa webworm)	Loxostege sticticalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Prodenia quinquemaculata (tobacco hornworm)	Prodenia eridania (armyworm)	Pseudaletia unipuncta (army armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 5/9-15			BL	10	4			4								8				145				Misc.
FLORIDA																								
Gainesville 5/13			BL					17	2	1						3	1							
GEORGIA																								
Tifton 5/7-13			BL						0	1								1	8					
ILLINOIS (County)																								
Champaign 5/8-14	41-74	0.31"		10						1			spp.			51				100			2	
KANSAS																								
Garden City 5/6, 8, 11				2		191		7		1			38			8				2				
Hays 5/7, 9, 12				2		38		24					72			5				10				
Manhattan #1 5/8-14				16		5		4		5			5			25	4			35				
Manhattan #2 5/8, 11				23		16		52		20			20			36	20			292				
Mound Valley 5/7-8				5		5		19		8			20			10	5			16				
Wathena 5/6				1				4					2							10				
MARYLAND (County)																								
Worcester 5/8-14				15											9	1				36				
MISSISSIPPI																								
Stoneville 5/9-15	51-87	0.15"	MV	26			5		4	2	2					12	27		7	13				
Stoneville 5/9-15	51-87	0.15"	BL	39			10		4	1	12					25	28		15	9				
MISSOURI																								
Portageville 5/1-7				0							0				0	0	0			3				
Portageville 5/8-14				0							1				2	1	0			6				
NEBRASKA																								
North Platte 4/27-5/5				47		40		25								277	1			518				
Scotts Bluff Expt. Sta. 4/29-5/5				1		6										22				1				
NORTH DAKOTA																								
Fargo 5/8-15				2		1										1				105				
SOUTH CAROLINA (Counties)																								
Oconee 5/2-8				1						2						5	1			8				
Oconee 5/9-15				6					1	7							3			10				
Charleston 5/11-17	52-90	0	BL	12		0			1	0	6	0				11	5	0	3	4			5	
SOUTH DAKOTA (County)																								
Brookings 5/9-15																				27				
TENNESSEE (Counties)																								
Maury 5/5-11				9							2					5	1			12				
Robertson 5/5-11				9							1					2				14				
Cumberland 5/5-11				9							3					1				21				
Greene 5/5-11				2							1					5				12				
Blount 5/5-11				6							1					5				7				
Johnson 5/5-11				7												1				16				
TEXAS																								
Waco 5/9-15				44					80		179					327	84			168	45	34		
Brownsville 5/7-13			5 BL	12			32		871	17	1486	238		13772		34	70	26	48	1		696		
WISCONSIN																								
Mazomanie 5/6-12			BL	71												2				304				
Madison 5/8-13	43-84		BL	18												7				98				
Middleton 5/8-11			BL	8												3				20				

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 700th meeting of the Hawaiian Entomological Society held April 13, 1964.

A SCARAB (Onthophagus catta (F.)) was found in good numbers in cow dung at Mapulehu, Molokai, on March 31, 1964. This is the first record of this dung beetle on Molokai. It has been reported from various localities on Oahu. This beetle was purposely introduced from Africa in 1957 to control horn fly (Haematobia irritans (L.)) on cattle. (N. L. H. Krauss).

Moderate to heavy infestations of a MEALYBUG (Pseudococcus obscurus Essig) were observed on papaya fruits throughout Kapoho, Hawaii, in March 1964. Nearly 30 acres of one farm were infested. Damages have been uneven ripening of fruits in addition to a stem-end rot caused indirectly by this mealybug. (M. Chong, E. Yoshioka).

A severe outbreak of ARMYWORM (Pseudaletia unipuncta (Haworth)) was observed in makai paddocks in the vicinity of the old Kamuela CCC camp, island of Hawaii, on April 8, 1964. The kikuyu grass appeared completely brown; 65 larvae were collected in a one-square-yard area in the fringe of the armyworm path. Four cocoon clusters of a braconid parasite (Apanteles militaris (Walsh)) and 12 larvae affected by a nuclear polyhedrosis virus were found in the area. (M. Chong, E. Yoshioka).

Surveys for a twig-boring BARK BEETLE (Xylosandrus compactus (Eichhoff)) show that it is established in Nuuanu, Manoa, Kaneohe, Ewa, Kahaluu, Kalihi and Aina Haina. Heavy infestations have been observed at several orchid nurseries during the past month. Damage is generally confined to the older canes of Dendrobium hybrids; however, where an infestation has been unchecked, especially if the spray program has been neglected, younger canes may be attacked. Many growers were unaware of the beetles in their orchids. Infested canes usually do not flower, but if they do, the flower sprays are weak and malformed. Natural offsets and new growth from the attacked canes may not develop. Damaged canes were found to contain all stages of the beetle, numerous exit holes, and soft, rotted and necrotic areas in the pith. Signs of X. compactus were also observed on Epidendrum spp. and Vanda joaquim stems, but no specimens were recovered. Infestations were also confirmed on the asparagus plant, Asparagus myriocladus. (J. Kim).

Weather continued from page 496: Light showers fell over the northern Rocky Mountains, the Dakotas, and the central Great Plains from Kansas to Kentucky and Tennessee. Tornadoes occurred in several States including Oklahoma, Iowa, and Louisiana. Some of the thunderstorms produced damaging hail. Subfreezing temperatures occurred over parts of the Dakotas, the central Rocky Mountains, and the Great Basin. Late in the week, warm weather pushed northward over much of the Nation. Temperatures reached 90° or higher in Idaho, South Dakota, and Illinois on 1 or 2 days. The Northeast continued relatively cool with afternoon temperatures mostly in the 70's. Precipitation was unimportant west of the Mississippi, except where a few isolated showers produced 0.50 inch or more. Light snow fell in the northern mountains of Colorado. Rains were unevenly distributed over the eastern half of the Nation with totals ranging from light sprinkles to 2.00 inches or more. A few stations near the Great Lakes received more than 2.00 inches. While temperatures generally averaged within a few degrees of normal, the Far West, from California to Idaho, averaged from 6° to 20° warmer than during the past several weeks. Temperatures averaged slightly below normal along the Pacific coast and over most of the Deep South and above normal over most of the rest of the Nation. Reported temperature departures over the country ranged from -7° at Yakima, Washington, to +8° at Cheyenne, Wyoming. Colorado was much warmer than normal by the weekend. In much of the East, the warmer temperatures occurred at the beginning and end of the week with cooler weather at midweek. (Summary supplied by U.S. Weather Bureau).

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Wheat (Commodity or Crop)

A. Pest or pest complex: Apple grain aphid, army cutworm, thrips, brown wheat mite, wheat curl mite, grasshoppers.

B.	Number of acres [a] produced (From CRS)	No.	2,600,000
C.	Average yield per acre [a] (From CRS)	Units/	8.25 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.90
E.	Acres [a] needing control	No.	11,400
F.	Acres [a] treated	No.	5,100
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	.39
I.	Loss in yield, units per acre [a], C x H	Units/	.032 bu.
J.	Loss in yield, $ per acre [a], D x I	$/	.06
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	201.6 bu.
M.	Control cost, $ per acre [a],	$/	2.00
N.	Control cost for all acres [a], F x M	$	10,200.00
O.	Yield loss for all acres [a], (E-F) x J	$	378.00
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	10,578.00
R.	Percent loss due to each insect in the complex:		

Comment: Most of the loss was due to apple grain aphid in the west and wheat curl mite in the northeast. Slight loss occurred in other areas due to grasshoppers, thrips and army cutworm. Drought was the major cause of reduced yields.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Barley (Commodity or Crop)

A. Pest or pest complex: Apple grain aphid, corn leaf aphid, greenbug, brown wheat mite, wheat curl mite, army cutworm.

B.	Number of acres [a] produced (From CRS)	No.	350,000
C.	Average yield per acre [a] (From CRS)	Units/	27.49
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.00
E.	Acres [a] needing control	No.	15,000
F.	Acres [a] treated	No.	9,000
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	.32
I.	Loss in yield, units per acre [a], C x H	Units/	.088
J.	Loss in yield, $ per acre [a], D x I	$/	.088
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	528
M.	Control cost, $ per acre [a],	$/	3.00
N.	Control cost for all acres [a], F x M	$	27,000.00
O.	Yield loss for all acres [a], (E-F) x J	$	528.00
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	27,528.00
R.	Percent loss due to each insect in the complex:		

Comment: Most of the control measures were applied in western Colorado for the apple grain aphid. Weather conditions had a major influence on yields.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

SURVEY METHODS FOR SURVEY ENTOMOLOGISTS

This is a continuation of the work begun by the North Central Branch, Entomological Society of America, Committee on Insect Surveys and Losses during 1960-61. The 1963-64 members of this committee are Alfred C. Dowdy, O. H. Hammer, Phillip W. Smith, Clarence E. White and Leroy L. Peters (Chairman).

INSECTS INTERFERING WITH CORN POLLINATION-LOSS SURVEY METHOD

This method was developed for use by the survey entomologist to make a reasonably accurate estimate of the damage and corresponding loss to corn caused by insects that interfere with the pollination of the ear. Insects involved include: corn rootworm adults, grasshoppers, corn earworm, Japanese beetle, and corn leaf aphid.

Timing of Survey

This survey can be made in conjunction with the corn rootworm loss survey (CEIR 14(19):455-458) or anytime after silks have dried.

Selecting the Site

If the corn rootworm loss survey is made, the same fields can be used for this survey. If not, examine at least 20 fields per district and more if time permits. The number of fields examined will vary due to crop distribution and is left to the discretion of the survey entomologist.

Forms for Recording Field Data

A standard method of recording the field data, facilitating entry of field notes and transfer of data from the field record, is desirable. A suggested form is on page 530

Method of Survey

The sample should be obtained by walking 50 steps into the field from the most accessible point. At this point, starting with the first plant on the observer's right, strip the shucks back on the next 25 ears in that row, and examine for lack of pollination (kernels failing to set). Record number of ears damaged. On five damaged ears, estimate number of kernels present by counting the number of kernels on an average row on the ear and multiply by the number of rows on the ears and record. (If less than five ears are damaged examine all ears damaged.) Estimate the number of kernels on five nondamaged ears in the same manner and record.

If the corn rootworm loss survey is being made, go 10 rows right from the last sample and take the next 25 ears to obtain a more accurate figure for percent ears damaged. Also record the number of ears damaged while making the rootworm survey. A total of 25 ears should be examined.

Acknowledgment is due C. C. Burkhardt, Assistant Professor of Entomology, Kansas State University, Manhattan, Kansas, for his assistance in the design and evaluation of this method.

Loss Calculation

The losses should be calculated on the district basis and losses for all districts are totaled together to obtain the State loss.

1. The number of ears damaged are recorded and the kernels on 5 damaged and 5 nondamaged ears are counted and recorded in the field.

2. $\frac{\text{Total ears damaged}}{\text{Total number ears examined}} \times 100 = \text{percent ears damaged}$

3. Obtain the average number of kernels for damaged and nondamaged ears <u>in each field</u>.

4. Total the "Average Estimated Kernel Count" columns and divide totals by number of fields examined = average number kernels per damaged and nondamaged ear.

5. $100\% - \left(\frac{\text{Average number kernels damaged ears}}{\text{Average number kernels nondamaged ears}} \times 100\right) = \text{percent reduction per damaged ear.}$

6. Percent ears damaged X percent reduction per damaged ear = percent loss all fields in district

7. $\frac{\text{Crop Reporting Service total yield for district (bu.)}}{100\% - \%\ \text{loss}} - \text{Crop Reporting Service total yield for district (bu.)} = \text{bushel loss for district}$

8. Sum total all district losses (bu.) X unit value ($/bu.) = total State Loss ($). See example given below. Circled numbers refer to corresponding numbers above. Use the fields on page 530 as an example of one district.

Field	Ears damaged (1) No.	Ears damaged (1) percent	Average Estimated Kernel Count (1) damaged ears	Average Estimated Kernel Count (1) nondamaged ears
1	1	4	4 (3)	703 (3)
2	0	0	-	649
-				
-				
20	2	8 (2)	97 (4)	716 (4)
20 TOTAL	10	$\div \frac{40}{20} = 2\%$	$\frac{451}{4} = 113$	$\frac{13{,}451}{20} = 673$

(5) $100\% - \left(\frac{113 \times 100}{673}\right) = 83\%$

(6) 2% x 83% = 1.7% loss all fields

(7) from Crop Reporting Service:
for District

Average yield/acre = 50 bu.
100,000 acres harvested
yield for District = 100,000 x 50 = 5,000,000 bu.

$\frac{5{,}000{,}000}{100 - 1.7} - 5{,}000{,}000 = 86{,}469$ bu. loss for District

(8) Add all district losses together X unit value ($) = Total State Loss ($)

INSECTS INTERFERING WITH CORN POLLINATION-LOSS SURVEY _____ (State)

DISTRICT _____ DATE _____ 19 _____ OBSERVER _____

Field No.	Ears Damaged			Estimated Kernel Count											
				Damaged Ears						Nondamaged Ears					
	No.	X 4	Per-cent	I	II	III	IV	V	Av.	I	II	III	IV	V	Av.
1	1	X 4	4	4	--	--	--	-	4	750	666	830	720	550	703
2	0		0							448	828	672	656	640	649
3	0		0							656	672	336	466	630	552
4	0		0							688	616	704	680	820	702
5	0		0							630	752	656	471	504	603
6	0		0							648	848	490	738	836	712
7	0		0							612	820	768	858	672	746
8	0		0							924	592	770	684	612	716
9	0		0							240	840	936	1000	792	762
10	0		0							432	320	540	752	448	498
11	0		0							860	684	336	594	828	660
12	3	X 4	12	250	120	350	--	--	240	688	574	660	828	654	729
13	0		0							600	704	680	774	608	673
14	0		0							640	616	390	736	506	578
15	0		0							546	720	558	864	360	610
16	0		0							624	656	704	784	792	712
17	0		0							880	720	630	864	654	750
18	4	X 4	16	124	150	76	88	--	110	450	608	546	840	936	698
19	0		0							656	828	666	574	688	682
20	2	X 4	8	90	104	--	--	--	97	702	624	600	860	792	716
	10	÷ 40/20 = 2%							÷ 451/4 = 113						÷ 13451/20 = 673

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 22 May 29, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 May 29, 1964 Number 22

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Adults of CEREAL LEAF BEETLE migrating to oats in Indiana and Michigan; hatching of eggs underway. (p. 533). Heavy populations of ARMYWORM still damaging small grains and pastures over wide portion of north and north central Texas, and larvae heavy in some wheat fields in southern Illinois. Armyworm activity also reported in Kansas, Missouri, Wisconsin, Michigan, Indiana and Maryland. (p. 534). EUROPEAN CORN BORER adults flying in sections of Maryland, Delaware and Illinois. Spring survival survey in southeast North Dakota showed number of larvae per acre 3,485 and percent survival 73. (p. 534). ALFALFA WEEVIL activity continues to increase in the Northeast and in the West, and number of counties reported infested for the first time in Ohio, Illinois, Missouri and Arkansas. Control difficulties reported in Pennsylvania. (pp. 536-537).

MEDITERRANEAN FRUIT FLY (single male) caught in Steiner trap at Miami, Dade County, Florida. No evidence of an established infestation found. (p. 541). Population of TEXAS CITRUS MITE in Florida citrus higher than in May of any prior year, and further increase expected with majority of groves having moderate to heavy infestations in June. Increase of CITRUS RUST MITE also underway in Florida citrus and about 10 percent of groves will have heavy infestations. (p. 542). Adults of CODLING MOTH active rather generally; entries appeared in Missouri. Injury to terminal twigs of peach trees by ORIENTAL FRUIT MOTH larvae observed in Ohio, Indiana, Missouri and Kansas; and FRUIT-TREE LEAF ROLLER common in New York, Connecticut and Maryland. (p. 543). PLUM CURCULIO adults and/or injury noted in Northeast and Mid-Atlantic areas, and in Ohio, Wisconsin and Missouri. (p. 544). LESSER PEACH TREE BORER adults appeared in Indiana and Ohio, and reported causing injury in Doniphan County, Kansas. (p. 544).

COLORADO POTATO BEETLE building up in southwest Ohio on potatoes and very numerous in sections of New Jersey and Maryland. Activity also reported in New York, Rhode Island, Massachusetts and Virginia, and damage reported in Alabama. (p. 546).

Feeding by CANKERWORMS evident on foliage of trees in Northeastern States and in Iowa, Minnesota and North Dakota. ELM LEAF BEETLE causing extensive defoliation of elms in Oklahoma and quite heavy in widespread areas of Chilton and other central Alabama counties. (p. 554). First-stage larvae heavy on elms in southeast Missouri. BIRCH LEAF MINER active in Vermont, Connecticut, Massachusetts, New Jersey and Pennsylvania. (p. 555).

MOSQUITOES annoying in sections of Utah, North Dakota, Minnesota, Illinois, Michigan and Rhode Island. (pp. 556-557). Unusually high populations of AMERICAN DOG TICK persisting in many northern counties of Wisconsin; continues bothersome in Lancaster County, Nebraska; and populations still high in Stillwater area of Oklahoma. (p. 557).

CUBAN MAY BEETLE reported from number of new host plants in Miami area of Florida. See CEIR 14(21):524 for additional host records of this species. JAPANESE BEETLE adults reported in North Carolina and Virginia. (p. 561).

DETECTION

ALFALFA WEEVIL (Hypera postica) reported in 14 new counties for the first time; 8 in Missouri, 3 in Illinois, 2 in Ohio and 1 in Arkansas. (pp. 536-537). CEREAL LEAF BEETLE (Oulema melanopa) found in Monroe County, Michigan; first new county reported in 1964. (p. 533). LARCH CASEBEARER (Coleophora laricella) found for first time in Moscow, Latah County, Idaho; indicating a rapid southward spread beginning to occur. (p. 552).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 558).

Reports in this issue are for week ending May 22 unless otherwise indicated.

WEATHER OF THE WEEK ENDING MAY 25

Warm, sunny days brought the hottest week of the growing season to date. Rainfall was limited to a few areas of scattered showers.

TEMPERATURE: Though the Pacific Northwest continued cool, temperatures averaged substantially above normal in most other areas. Midperiod maxima soared to 100° levels in the central and northern Plains States boosting averages in these areas to more than 12° above normal. Kansas had 6 days of 90° or higher. East of the Mississippi, 2 or more days of 90° heat pushed averages to 6° above normal from the central Mississippi Valley into southern New England. Many stations from the Rocky Mountains to New England set new daily records and the mercury hit new early season maxima at some locales. On the 21st, while new lows for the date were set in Michigan and Vermont, Fargo, North Dakota, and International Falls, Minnesota, recorded new early season marks of 98° and 95°, respectively. A new May high of 98° was logged at Marquette, Michigan. The weekend brought record heat to the Northeast as 90° readings were observed in northern New England.

RAINFALL: Dry weather prevailed over most areas of the Country. Warm air, long sunny days, and brisk winds in many of the main agricultural areas east of the Rockies further depleted moisture supplies. Brief shower periods late in the week, brought totals to over 1 inch at many stations from Lake Superior through western Missouri. Frequent showers over the coastal plain and lower Rio Grande Valley of Texas gave weekly amounts over 1 inch; some totals exceeded 5 inches. General showers early and late in the week deposited 0.5-1 inch amounts from northeast Ohio through northern New England. Heavy showers after midweek wetted the southeast coast of Florida with 2- to 4-inch falls.

DRY WEATHER: The principle dry area east of the Mississippi is found over South Carolina and Georgia where little or no rain has fallen in 3 weeks. Over the Country, the most striking deficiency is found over central and eastern New Mexico and parts of west Texas including the Panhandle. Amarillo, Texas, has had only 0.14 inch in the last 17 weeks; Roswell, New Mexico, only 0.17 inch in 15 weeks; Midland, Texas, a trace in the last 9 weeks.

OTHER ITEMS: Severe storms dropped golf ball size hail in Stillwater, Minnesota, on the 18th, pelted areas in northern Vermont and near Cleveland, Ohio, with 0.75-inch stones on the 19th, and caused extensive hail damage to cars and crops in Hampton County, South Carolina. On the 22nd, a tornado dipped into a Nebraska field, while another hit Marion, Minnesota, on the 23rd. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OKLAHOMA - Threatening nymphal populations present on extensive acreage of rangeland in Carter and Murray Counties, south central; several species involved. Only light counts present in northwest areas, with very little activity in Cimarron County, panhandle area. (Okla. Coop. Sur.). COLORADO - Rangeland species low in numbers in Huerfano and Larimer Counties; some nymphs and overwintering adults present. (Blase, Jenkins, Figurski). KANSAS - Few first to third instars of Melanoplus spp. noted in some fields in eastern area. (Peters). MISSOURI - Early instars of M. sanguinipes found in Buchanan County, northwest. Early instars of several species light in southwest area. (Houser, Thomas, Wood). SOUTH DAKOTA - Very light hatch of grasshoppers observed May 14 in Jones, Mellette, Tripp, Gregory and Lyman Counties, south central. Only few first-stage nymphs found at any location; most were Melanoplus bivittatus, with few M. sanguinipes present. Light hatching of cropland and rangeland species observed in western area. (Burge, Zimmerman). First-instar M. sanguinipes averaged 3 per 100 sweeps in alfalfa in Campbell County. (Hintz). NORTH DAKOTA - Nymphal survey conducted in Kidder, Logan, Emmons and Burleigh Counties. Marginal infestations ranged from less than 1 to 10 per square yard. Some alfalfa and old stubble fields had up to 6 per square yard. M. bivittatus, M. sanguinipes and M. differentialis dominant species. All nymphs in first and second stages. (Brandvik). MINNESOTA - First egg hatch observed in Anoka, Sherburne, Wright, Winona and Rice Counties. Hatch was light, with only Melanoplus spp. being found. If present warm weather continues, egg hatch of earlier species should be well underway week ending May 29 in light sandy soil areas. (Minn. Ins. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - In Hudson Township, La Porte County, and Olive Township, St. Joseph County, northwest section, heavy deposition of eggs in seedling oats noted May 18 and 19. Very little hatch in oats. Few fields with egg counts as high as 300-350 per 100 stems. Peak hatch expected May 25 to June 1 in oats. Occasional hatching in oats to May 20. Adult populations leaving wheat for oats; very few eggs being found in wheat. Few third-stage larvae observed on wheat. No loss to wheat expected in State during 1964. (Wilson). MICHIGAN - Monroe County is first new county to be found infested in 1964. State-Federal survey crews made positive finds in Whiteford Township, Summerfield Township and Exeter Township. Four additional townships (Thornapple, Irving, Carlton and Woodland) also found infested for first time in Barry County. Adults migrated predominantly into oat fields. In research fields of oats near Gallien, Berrien County, adults, eggs and young larvae all present. Most larvae in first and second stages. Over 90 percent of eggs in wheat and grass fields hatched. Adults extremely rare and larvae scarce in areas treated under State-Federal suppression program. Additional treatments for larvae to start as soon as weather conditions permit. (Boyer, Lovitt, Ruppel, Ring).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE - Present on young corn in most areas of State. (Burbutis). MARYLAND - Heavy on young sweet corn at several localities in Charles, Harford and Worcester Counties. Generally light on field corn in Wicomico and Worcester Counties. (U. Md., Ent. Dept.). OHIO - Adults moderate on young sweet corn plants in Brown County, southwest; first of season. (Lyon).

FALSE WIREWORMS - NEBRASKA - Larvae abundant in many western area wheat fields. One report of damage received from Dundy County. (Pruess).

WIREWORMS - COLORADO - Damaged corn in Phillips County, necessitating replanting. (Ext. Serv., Schafer).

BILLBUGS - NORTH CAROLINA - Sphenophorus sp. damaging several fields in Union County. (Marsh, Mount). SOUTH CAROLINA - Adults of unspecified species damaging corn in Clarendon County. (Nettles et al., May 19). GEORGIA - Moderate infestations of S. callosus in southeast. (Gurley).

SOUTHERN MASKED CHAFER (Cyclocephala immaculata) - NEBRASKA - Adult activity very noticeable in Lancaster County. (Walstrom).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Heavy populations still causing damage to small grains and pastures over wide portion of north and north central areas. Approximately 50,000 acres treated in Grayson and Denton Counties. (Texas Coop. Rpt.). OKLAHOMA - Heavy populations reported previous week at scattered locations throughout eastern half of State considerably reduced. (Okla. Coop. Sur.). KANSAS - Counts 0-15 (average 3-9) per foot of row in Crawford County, southeast. Controls to be initiated in heavier infested fields. (Gates). Counts in northeast and east central areas range 0-2 per foot of row. About 75 percent of wheat fields in these areas infested with second and third-stage larvae in light numbers. Occasional parasitized larva noted. (Peters). MISSOURI - Building up in down spots of small grains; 11-30 per square foot in Bates and Vernon Counties, west central area. (Houser, Thomas, Wood). ILLINOIS - Larvae heavy in some wheat fields, up to 25 per linear foot, in southern half of State; most larvae about two-thirds grown in southern tip of State and in central region most in second instar. (Ill. Ins. Rpt.). WISCONSIN - Larvae 5 per 100 sweeps in field of barley in Green County; damage not apparent. (Wis. Ins. Sur.). INDIANA - One of 6 wheat fields surveyed in Knox and Greene Counties, southwest, infested with 3.7 first to third-stage larvae per linear foot of row. (Bram, Matthew). MICHIGAN - Moderate numbers of adults taken at blacklight traps recently in Livingston, Kalamazoo, Branch and Ingham Counties; few larvae swept from wheat in Berrien County. (Newman, Bailey, Tundevald, Ruppel). MARYLAND - Light to moderate numbers of larvae up to one inch in length infesting barley and rye in Worcester County. Heavier outbreaks may occur. (U. Md., Ent. Dept.). SOUTH CAROLINA - Appearing at usual time in well-fertilized oat plantings in Calhoun County. Excellent control being obtained. (Nettles et al., May 19).

AN ARMYWORM - GEORGIA - Heavy infestations on wheat and oats in Peach and Crawford Counties. (Harvey, May 18).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Results of spring survival survey conducted in Cass, Richland, Sargent and Ransom Counties showed 73 percent survival, with average number of live larvae per square yard 0.72. Number of larvae per acre 3,485. One field in Fargo area showed 37.5 percent of larvae alive and 62.5 percent dead. (Frye). NEBRASKA - Majority of larvae in fifth stage; beginning stages of pupation evident in most northeast areas. (Bergman). IOWA - Pupation 10 percent at Ankeny and in Boone County May 14. Early planted corn on Ankeny farm 4 inches high. (Brindley, Iowa Ins. Inf.). ILLINOIS - Pupation complete in southern area, ranges from 50 to 90 percent complete in central area and from 25 to 70 percent in northern area. Moth emergence well underway in southern area and begun in central area. No moth emergence recorded in northern area. Some death of overwintering borers noted. (Ins. Sur. Bull.). MARYLAND - Numbers of moths appearing at blacklight traps at Berlin, Centreville, on Eastern Shore, increased considerably over previous weeks. (U. Md., Ent. Dept.). DELAWARE - Total of 80 adults taken in blacklight trap May 13-20 in Sussex County. Egg masses rather common on weeds in this area and on potatoes in Kent County. (Bray).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Surveys in southwest show no pupation, but few larvae beginning to build their cocoons. (Houser, Thomas, Wood).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Counts less than 1 per foot of row in wheat in northeast and east central areas; about 75 percent of fields infested. (Peters). WISCONSIN - Adults appearing in Mazomanie blacklight trap. (Wis. Ins. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - GEORGIA - Light on corn in Tift County. (McMillan).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IOWA - Collected in field seeded this spring to oats, brome, alfalfa, trefoil, and red clover in Adams County. Larvae had eaten all plant growth from high parts of field. Corn has been damaged in State in previous years. (Iowa Ins. Inf.; May 18). NEBRASKA - Some damage to wheat noted in Kimball County and to alfalfa in Scotts Bluff County. Development about 20 days later than normal. (Pruess, Hagen).

BRONZED CUTWORM (Nephelodes emmedonia) - MISSOURI - Causing light damage to bluegrass pastures in Clay County, northwest. (Houser, Thomas, Wood).

CUTWORMS - MARYLAND - Undetermined species caused light to moderate injury to field and sweet corn in Carroll and Harford Counties. (U. Md., Ent. Dept.).

SOD WEBWORMS (Crambus spp.) - NEBRASKA - Adult activity very common in Lancaster County. (Walstrom). KANSAS - Adults active for about 10 days in Doniphan County (Eshbaugh) and noted in lawn in Riley County (Peters). ILLINOIS - Abundant in lawns in Urbana area, May 16. (Ill. Ins. Rpt.). VIRGINIA - Larvae of C. caliginosellus causing heavy damage to seedling field corn in spots in 2 fields of approximately 5 acres each in Pittsylvania County, (Dominick, May 18). Larvae severely infesting field of seedling field corn near Appomattox, Appomattox County; approximately 80 percent of plants infested. (Tarpley, Smith; May 15). Larvae infesting seedling corn on farm near Newport, Craig County. (Tarpley, May 21).

ENGLISH GRAIN APHID (Macrosiphum avenae) - NEBRASKA - Counts in oats less than 1 per 10 sweeps in Cedar and Knox Counties. (Bergman). MINNESOTA - Counts low in small grains, averaged about 40 per 100 sweeps. (Minn. Ins. Rpt.). WISCONSIN - Populations higher in all grain fields than Schizaphis graminum (greenbug). Winged forms quite common, especially in oat fields examined in Trempealeau County area. Ranged from 3 per 100 sweeps to 3 per sweep. Some disease and/or parasitism appearing. (Wis. Ins. Sur.). ILLINOIS - Varied 0-25 per sweep in wheat in southern half of State. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs averaged 1 per 10 sweeps on wheat in Benton County, northwest, and 3 per 10 sweeps in Greene County, southwest. (Bram). ARKANSAS - Numbers low in small grains in northwest. (Ark. Ins. Sur.).

GREENBUG (Schizaphis graminum)- COLORADO - Ranged 3-5 per linear foot in winter wheat in Phillips County. (Ext. Serv., Schafer). NEBRASKA - Averaged less than 1 per 10 sweeps on oats in Cedar, Knox and Pierce Counties. (Bergman). MINNESOTA - Present, but extremely light, in south central, southeast, east central and central districts. (Minn. Ins. Rpt.). WISCONSIN - Ranged 3-6 per 10 sweeps in early planted oat fields in Trempealeau area. Few colonies forming and few winged forms present. Few colonies also noted forming on early planted oats in La Crosse and Green Counties. (Wis. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Counts in Austin County averaged 5 per stalk on young corn. (Texas Coop. Rpt.; McClung). KANSAS - Only an occasional adult noted in wheat and young corn in northeast and east central areas. (Peters).

FALSE CHINCH BUGS (Nysius spp.) - NEW MEXICO - Heavy on barley and lighter on oats on farm near Carlsbad, Eddy County. Counts often averaged 100 adults per head of barley or one pint of adults per 5 sweeps. Controls applied to these fields. (N.M. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - SOUTH DAKOTA - Populations in north central and northeast areas averaged 200 per 100 sweeps on alfalfa and slightly less on small grains. (Hintz). NORTH DAKOTA - Up to 5 per sweep taken along roadside near Clifford, Traill County. (Frye). MINNESOTA - Counts high in east central and central districts early in week; 400-500 per 100 sweeps in alfalfa and small grain. By May 21, counts down to 0-100 per 100 sweeps and averaged around 20 per 100 sweeps. Migration north with strong southerly winds suspected. (Minn. Ins. Rpt.). WISCONSIN - Adults becoming common in oat fields.

Averaged 3-6 per 100 sweeps in most fields in southern tier of counties. (Wis. Ins. Sur.). MICHIGAN - No adults collected in sweepings taken May 19 in Berrien, Cass, Ingham and Livingston Counties. (Newman, Janes).

SEED-CORN MAGGOT (Hylemya platura) - VERMONT - Adults observed May 16; treated seed corn recommended. (MacCollom). VIRGINIA - Some poor stands of sweet corn on Eastern Shore attributed to this species. (Hofmaster).

WHEAT STEM MAGGOT (Meromyza americana) - INDIANA - Less than 1 percent of wheat in Knox and Greene Counties (southwest) infested. (Bram, Matthew). MISSOURI - Heavy in bluegrass pastures in Buchanan, Clinton and Clay Counties, northwest. (Houser, Thomas, Wood).

SAWFLIES (Dolerus spp.) - OHIO - D. unicolor, D. collaris and D. nitens found April 10 in northwest area. Det. by B. D. Burks. Larvae now quite plentiful in forage crops throughout same area; 2-3 larvae per sweep in Medina County, northeast. (Thoburn, Lyon).

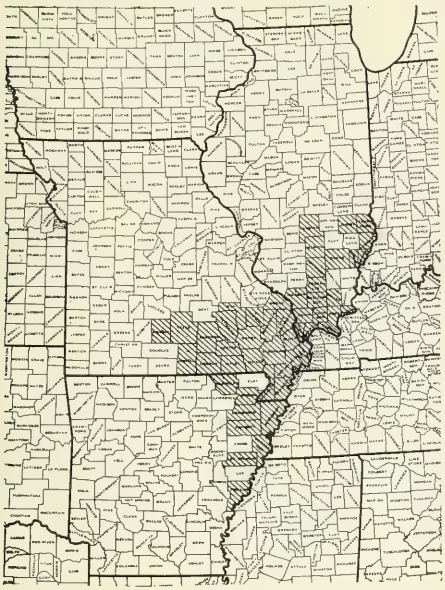
BROWN WHEAT MITE (Petrobia latens) - COLORADO - Up to 20 per linear foot in wheat in Phillips County. Some mosaic evident in Amherst area. (Ext. Serv., Schafer).

THRIPS - MARYLAND - Beginning to infest more advanced field and sweet corn in southern areas. (U. Md., Ent. Dept.). GEORGIA - Light to heavy infestations on peanuts in south central and southwest areas. (Johnson). MISSOURI - Light on oats in southeast and on corn in Newton County, southwest. (Harrendorf, Jones, Houser, Thomas, Wood). NEW MEXICO - Generally light to moderate with occasional heavy infestation in southern area alfalfa. (N.M. Coop. Rpt.). ARIZONA - Chirothrips spp. light in Bermuda grass in Yuma County; no treatments required during week. (Ariz. Coop. Sur.). CALIFORNIA - Medium populations of immature Frankliniella occidentalis occurring on safflower plantings in Huron and Five Points and heavy on alfalfa in Coalinga, Fresno County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - VERMONT - Adults ranged 1-4 per 10 sweeps in Springfield-Bellows Falls area, Windsor and Windham Counties on May 15; no larvae found. (MacCollom). MASSACHUSETTS - Some fields in Hampshire and Hampden Counties had over 1,200 larvae per 100 sweeps; "ragging" of foliage obvious in such fields. (Shaw). RHODE ISLAND - Larval feeding and larvae common in field at Kingston, Washington County; eggs also present. Similar situation reported from Slocum, Washington County. (Mathewson, Wakefield). NEW YORK - Averaged 25 third and fourth-stage larvae per sweep and 1 adult per 3 sweeps about 9 p.m. on May 13 at Fishkill, Dutchess County; injury readily apparent. In another field on hill top, 75 larvae and one adult per sweep taken in severely damaged area in same county. Less than one larva per sweep taken in severely damaged area in same county. One larva or more per sweep taken in portion of field left untreated near Greenwich, Washington County; less than one larva per 3 or 4 sweeps taken in fall treated portion of same field. There appeared to be some resistance to chlorinated hydrocarbon used. Relatively severe damage readily found in alfalfa not sprayed in fall of 1963 in Ulster County; those fields fall sprayed show excellent control. (N.Y. Wkly. Rpt., May 18). PENNSYLVANIA - Very heavy in most areas with spring controls acting merely as a few days check. Fall treatment varies from complete control to very unsatisfactory results. (Udine). MARYLAND - Pupation well advanced on Eastern Shore and first-generation adults appeared May 22 in Howard County. Larvae and adults damaged second-growth alfalfa in Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Movement of adults out of alfalfa well underway in Mecklenburg and Prince Edward Counties. (Pienkowski). Most alfalfa cut in Floyd, Patrick, Henry and Franklin Counties, making larval surveys impossible. First cutting well underway in Montgomery and surrounding counties. Infestation in uncut fields light to very severe in Montgomery, Pulaski, Wythe, Carroll and Grayson Counties. (Tarpely). SOUTH CAROLINA - Considerable damage appeared during late April on alfalfa treated during fall of 1963 in Cherokee County. More devastating this spring on old stands of alfalfa than previously noted in Newberry County; only light infestations noted on new

seedings treated with proper insecticide in fall of 1963. (Nettles et al, May 8). OHIO - Adults collected from two fields of alfalfa near Seville, Medina County, northeast area; few larvae also collected. Three adults per 25 sweeps near Mount Orab, Brown County, southwest area, in bottomland alfalfa. These are new county records. (Lyon, Thoburn). INDIANA - Surveys of alfalfa in Denton, Newton, Lake, Porter and La Porte Counties (northwest) and Greene, Knox and Daviess Counties (southwest) were negative. (Bram). ILLINOIS - Adults varied 0-8 and larvae 0-16 per 100 sweeps in second-growth alfalfa in southwest district. All stages of larvae present. Most adults newly emerged. Found in Saline, Edwards and Fayette Counties for first time. (Ill. Ins. Rpt.). MISSOURI - Larvae swept from alfalfa in 8 new counties: Madison, Iron, Reynolds, Shannon, Oregon, Howell, Texas and Wright. Heaviest counts in Reynolds and Shannon Counties, averaging 2-3 and 2-4 per sweep, respectively. Moderate damage found in Shannon County, (Houser, Thomas, Wood). ARKANSAS - Larvae taken from alfalfa in Randolph County (northeast). This is a new county record. (Ark. Ins. Sur.). COLORADO - Counts per 100 sweeps in Larimer County alfalfa ranged 10-30 adults and 100-200 larvae. Some damage appearing on terminal growth. (Jenkins). Larvae as high as 300 per 100 sweeps in Mesa County alfalfa; ranged 30-50 per 100 sweeps in most fields, with 20-30 percent parasitized by Bathyplectes curculionis. (Bulla). WYOMING - Adult activity increasing in Fremont County alfalfa; averaged 8-12 adults per 100 sweeps in 36 fields. No larval activity noted. (Marks). UTAH - Adults averaged 2 per sweep in area of Box Elder County; few first-stage larvae also present. Adults more active in northern part of State during past weeks. Activity slow this spring in Cache County; no larvae found, but adults taken in moderate numbers during field surveys. More numerous as adults in some Davis, Weber and Salt Lake County fields. (Davis, Knowlton). NEVADA - Adults per sweep averaged 4 in southern Washoe County, 2-3 in Lovelock area, Pershing County, and 8-10 in Fallon area, Churchill County. Eggs present in alfalfa stems and mating adults and gravid females observed in these areas and in Mason Valley, Lyon County, and Douglas County. In all of these areas, larval hatch appeared uneven and very few intermediate instars observed, but some full-grown larvae and numerous newly hatched larvae present. Highest larval counts 30-40 per sweep in Douglas County. (Batchelder, Cooney, Ferraro, Lauderdale, Weaver, York). CALIFORNIA - Larvae light on alfalfa in Gonzales area of Monterey County. (Cal. Coop. Rpt.).

Distribution of Alfalfa Weevil in Arkansas, Missouri & Illinois



CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Adults general in fields of white clover in Boundary County. Due to cold weather, growth of clover slow and resulting damage to plants rather severe. (Ingle). IOWA - Small larvae averaged 2 per plant in eastern area. (Iowa Ins. Inf., May 18). OHIO - Adults 2 and larvae 6 per 50 sweeps on alfalfa in Wayne County, northeast area. (Lyon).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - Larvae causing extensive damage to 1963 fall planted field of red clover north of Notus, Canyon County. Larvae feeding on developing stem and bud growth on estimated 80 percent of all leaf axils. (Waters). SOUTH DAKOTA - Adults averaged 23 per 100 sweeps in

Campbell County alfalfa. (Hintz). IOWA - Overwintered adults noted in east central area. (Iowa Ins. Inf., May 18). OHIO - Adults 8 per 25 sweeps in alfalfa in southeast Fayette County, southwest area. (Lyon).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - UTAH - Notching leaves of sweetclover at Huntsville, Weber County. (Knowlton). NEBRASKA - Averaged 9 adults per 10 sweeps on Cedar County sweetclover; moderate leaf feeding damage evident. (Bergman). NORTH DAKOTA - Moderate damage to clover observed near Kindred, Cass County; averaged 2 per sweep. (Frye).

CLOVER ROOT CURCULIO (Sitona hispidula) - OHIO - Adults 6-10 per 50 sweeps on red clover-alfalfa forage in Medina County, northeast. (Lyon).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - Heavy adult flight occurred for 10 days in Canyon County. (Waters).

CLOVER STEM BORER (Languria mozardi) - MISSOURI - Few adults found in red clover in Chariton County, north central. (Houser, Thomas, Wood).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - WASHINGTON - First adults obtained in soil emergence traps over grass and plant duff adjacent to white Dutch clover seed field at Pullman, Whitman County, on May 20. (Hutt). IDAHO - First adult of season obtained May 18 by sweeping Symphoricarpos spp. in swale alongside field of white clover east of Moscow, Latah County. (Y. Unus).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Large migrations found near Clayton, Jefferson County; this area and area near Sacketts Harbor are areas of greatest infestation. Baiting of ditch banks, fallow and plowed fields continues with good results evident. (N.Y. Wkly. Rpt., May 18).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NEBRASKA - Averaged 1 adult per 10 sweeps of sweetclover in Cedar County. (Bergman). WISCONSIN - Appearing in alfalfa in southern part of State. (Wis. Ins. Sur.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Adults 1-3 per 25 sweeps in alfalfa near Los Lunas, Valencia County. (N.M. Coop. Rpt.).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - ILLINOIS - Adults 0-70 per 100 sweeps in alfalfa in southwest district; first of season. (Ill. Ins. Rpt.).

PEA APHID (Acyrthosiphon pisum) - WASHINGTON - All stages damaging alfalfa grown for seed at Yakima and vicinity, Yakima County; ranged 1-25 per sweep. Ranged 4-220 per sweep (mostly 10-20) at Gardena Bench, Lowden area of Walla Walla County. (Featherstone, Halfhill). WYOMING - Averaged 150 per 100 sweeps in alfalfa in Fremont County. (Marks). COLORADO - Populations low in alfalfa in Larimer County; averaged 200 per 100 sweeps. (Jenkins). UTAH - Active but not serious in alfalfa at Ogden, Weber County. (Knowlton). NEVADA - Varied 3-60 per sweep in southern Washoe County alfalfa. (Cooney). Light, spotted infestations in Lovelock, Pershing County. (Ferraro). ARIZONA - Populations diminishing in alfalfa in Graham, Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Remains light in most alfalfa in southern counties. (N.M. Coop. Rpt.). OKLAHOMA - Generally fewer than 50 per 10 sweeps noted in alfalfa checked in south central and southwest areas. (Okla. Coop. Sur.). MISSOURI - Counts low in northwest and southwest; 150-300 per sweep in Wright and Webster Counties, south central area, with predator and parasite counts high also. (Houser, Thomas Wood). IOWA - Averaged 8-10 per 10 sweeps; only few immature forms noted, indicating stem mothers just beginning to produce living young. (Iowa Ins. Inf., May 18). NEBRASKA - Averaged 370 per 100 sweeps in Saunders County alfalfa. (Calkins, Jarvis). Ranged 15-75 per 10 sweeps on alfalfa and sweetclover in Cedar, Knox, Pierce and Wayne Counties. (Bergman). NORTH DAKOTA - Beginning to build up on alfalfa; up to 5 per sweep in southeast. (Frye). MINNESOTA - Range

per 100 sweeps in alfalfa 50-500 in southeast, 50-600 in south central, 150-400 in east central and 280-800 in central district. Winged forms found in all fields. Predators, primarily lady beetles, present in low numbers. (Minn. Ins. Rpt.). WISCONSIN - Very little population change noted; about 10 percent winged forms in most fields. Varied 30-75 per 10 sweeps on alfalfa in Iowa County; 27-70 per 10 sweeps in southern Grant County; and 3-45 (averaged about 20) per sweep in southern Dane, Green and Rock Counties. (Wis. Ins. Sur.). ILLINOIS - Building up on alfalfa in west-southwest and southwest districts; 100-200 per sweep common. Hay harvest underway and treatments unnecessary. (Ill. Ins. Rpt.). INDIANA - Nymphs and adults averaged 150 per sweep on alfalfa in Posey County, southwest. (Everly). Ranged 5-30 (averaged 20) per sweep on alfalfa and 6 per sweep on red clover in Greene County and 10 per sweep on alfalfa in Daviess County, southwest. Ranged 2-20 per 10 sweeps in Newton, Lake, Porter and La Porte Counties, northwest. (Bram). VERMONT - Populations exceptionally high on alfalfa May 14 in Bristol area, Addison County. Humid weather caused sharp decline in population due to disease, but some stunting of alfalfa noted. (MacCollom). RHODE ISLAND - Very numerous on alfalfa locally at Kingston, Washington County. Accompanied by numerous lady beetles. Parasitized aphids also common. (Mathewson). ALABAMA - Damaging caley peas in Marengo County. (Jones).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Ranged 3-70 per sweep in Brodhead area; 50 percent winged and 35 percent with wing pads in one field and 37 percent winged and 45 percent with wing pads in another field. Parasitism appears quite low. Alfalfa being cut in some areas which may be strong influential factor. Considerable dispersion expected. (Wis. Ins. Sur.). ILLINOIS - Varied 0-8 per sweep in Bond-Madison-St. Clair County area, 0-4 per sweep in McDonough-Fulton-Mason County area and few observed in Massac County. None observed elsewhere. (Ill. Ins. Rpt.). MISSOURI - Average per sweep 20-25 in Vernon County and 10-15 in Greene County, southwest. (Houser, Thomas, Wood). NEBRASKA - Counts of 2 per 10 sweeps noted in Cedar County. (Bergman). ARKANSAS - Ranged 75-100 per 100 sweeps on alfalfa in Washington County (northwest). (Ark. Ins. Sur.). OKLAHOMA - Averaged 25 per 10 sweeps in Cotton County, southwest. None noted in fields checked in south central areas. (Okla. Coop. Sur.). NEW MEXICO - Populations remain light in most alfalfa in southern counties. (N.M. Coop. Rpt.).

SWEETCLOVER APHID (Therioaphis riehmi) - NEBRASKA - Averaged 1 per 10 sweeps of sweetclover in Cedar County. (Bergman).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - Found in Winona County, averaged less than one per stem. (Minn. Ins. Rpt.). IOWA - Hatched in large numbers May 13 in east central area. Small nymphs ranged 2-10 per sweep in alfalfa and red clover in Scott, Clinton, Cedar, Jones and Linn Counties. (Iowa Ins. Inf.). INDIANA - Nymphs ranged from less than 1 to 4 per 10 stems on alfalfa in Greene, Knox and Daviess Counties, southwest. Nymphs in area in advanced stage of development; adults should appear soon. Ranged 1-7 per 10 stems on alfalfa in Newton, Lake, Porter and La Porte Counties, northwest. (Bram). OHIO - Fourth and fifth instars observed in many southwest area forage fields. Most nymphs approaching adult stage. Twenty nymphs collected on wild carrot plant in Fayette County, southwest. (Lyon). NEW YORK - Readily found throughout Jefferson, Oswego and Wayne Counties; infestations do not appear great at present. (N.Y. Wkly. Rpt., May 18). VERMONT - Not yet heavy on trefoil; may be due to open winter. (MacCollom, May 19). DELAWARE - Nymphs rather common in some New Castle County alfalfa. (Burbutis). VIRGINIA - Adults present in Prince Edward County. (Pienkowski).

POTATO LEAFHOPPER (Empoasca fabae) - NEBRASKA - Averaged 7 per 100 sweeps on Saunders County alfalfa. (Calkins, Jenkins). IOWA - Averaged 1 per 10 sweeps throughout east central area; presumably migrant adults from south. (Iowa Ins. Inf., May 18). ILLINOIS - Adults per 100 sweeps in alfalfa were 380-1,260 in west, 980-1,540 in central, 260-1,640 in west-southwest, 20-1,740 in east-southeast, 40-660 in southwest and 60-150 in southeast. (Ill. Ins. Rpt.). INDIANA - Adults averaged 3 per sweep on alfalfa in Knox, Greene and Daviess

Counties (southwest) and 5 per sweep in Newton, Lake, Porter and La Porte Counties (northwest). (Bram).

LEAFHOPPERS (Empoasca spp.) - VIRGINIA - Adults recently arrived; specimens encountered in Mecklenburg, Prince Edward, Roanoke and Rockbridge Counties. (Pienkowski).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - SOUTH DAKOTA - Counts 50 per 100 sweeps in Campbell County alfalfa. (Hintz). FLORIDA - Counts per 100 sweeps in alfalfa recently cut in Gainesville, Alachua County, 18 adults and 2 nymphs. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Slowly increasing in alfalfa; average per 100 sweeps 10 in Graham County, 35 in Yuma County and 30 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - FLORIDA - Adults 9 per 100 sweeps in alfalfa recently cut in Gainesville, Alachua County. (Mead). ARIZONA - Beginning to appear in Graham County alfalfa; averaged 10-20 per 100 sweeps. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - FLORIDA - Adults 20 per 100 sweeps in alfalfa recently cut at Gainesville, Alachua County. (Mead). MICHIGAN - Adults moderate on various crops in Lower Peninsula;6 per 10 sweeps in alfalfa in Cass County. (Janes, Carpenter, Lincoln, Newman). ILLINOIS - Adults 20-120 and nymphs 0-100 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.). IOWA - Averaged 1 per 10 sweeps in alfalfa and red clover. (Iowa Ins. Inf., May 18). NORTH DAKOTA - Appearing on alfalfa; up to 2 per sweep observed. (Frye). NEBRASKA - Adults and nymphs ranged 3-8 per 10 sweeps in alfalfa in northeast areas. (Bergman). MISSOURI - Counts low in southwest; 1-7 per sweep on alfalfa and 7-10 per sweep in field of red clover in Newton County. (Houser, Thomas, Wood). ARKANSAS - Reproduction continued in legume and small grain fields checked. Adults and nymphs of all sizes present in most fields. (Ark. Ins. Sur.). KANSAS - This species and Adelphocoris lineolatus in mature alfalfa in northeast and east central areas ranged from 100 to over 1,000 per 100 sweeps. (Peters). WISCONSIN - Adults common and range as high as 5 per 10 sweeps in alfalfa in southwest. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in alfalfa in Maricopa, Pinal, Yuma and Graham Counties except in fields that have been cut. Counts in uncut fields averaged 10 per sweep. (Ariz. Coop. Sur.). NEVADA - Averaged 1-2 per sweep in southern Washoe County and Lovelock area of Pershing County in alfalfa fields. (Cooney, Ferraro). UTAH - Becoming numerous on alfalfa near Ogden, Weber County, with few nymphs present. Largely L. elisus. (Knowlton). COLORADO - Average 100 per 100 sweeps in Larimer County alfalfa. (Jenkins). WYOMING - Adults in alfalfa averaged 30 per 100 sweeps in Fremont County. (Marks).

RAPID PLANT BUG (Adelphocoris rapidus) - ILLINOIS - Adults 10-80 and nymphs 0-200 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.). WISCONSIN - Nymphs prevalent in some alfalfa fields; as high as 6 per sweep with some nymphs half grown in warmer areas of State. (Wis. Ins. Sur.). NEBRASKA - Ranged 3-6 nymphs per 10 sweeps of alfalfa in Cedar and Knox Counties. (Bergman). MINNESOTA - This species and A. lineolatus hatching in southeast, south central, east central and central districts. (Minn. Ins. Rpt.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Adults 0-140 and nymphs 0-500 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.). WISCONSIN - Nymphs not as common as Lygus lineolaris and A. rapidus but forming wing pads in more advanced areas of State. (Wis. Ins. Sur.).

VARIEGATED CUTWORM (Peridorma saucia) - KANSAS - Counts in alfalfa in northeast and east central ranged 25-400 per 100 sweeps in mature alfalfa. Occasional larva found under trash in recently cut fields. Occasional parasitized larva

noted. (Peters). MISSOURI - Averaged 1-4 per square foot in northwest and southwest areas on small grains and legumes. (Houser, Thomas, Wood). OKLAHOMA - Heavy populations reported from scattered locations throughout east half of State previous week have been considerably reduced. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - Light numbers of early stage larvae noted in alfalfa in Murray and Garvin Counties, south central; 0-1 per 10 sweeps. (Okla. Coop. Sur.). ARKANSAS - Second to fourth-stage larvae ranged 20-25 per 100 sweeps in Washington County alfalfa. (Ark. Ins. Sur.). GEORGIA - Light infestation in whorls of corn in Tift County. (McMillan). FLORIDA - Scattered and lightly infesting bloom of corn at Zellwood, Orange County. (Musgrove, Brown; May 7).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light, scattered counts present in south central areas and counties; 0-3 per 10 sweeps. (Okla. Coop. Sur.). ARKANSAS - Small numbers, 10-20 per 100 sweeps, noted in Washington County alfalfa. (Ark. Ins. Sur.). ILLINOIS - Larvae 10-80 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - WYOMING - Considerable activity noted in Fremont County alfalfa fields. (Marks). ARIZONA - First appearance of larvae noted in alfalfa in Graham County. Scattered fields show 2-8 larvae per 100 sweeps. (Ariz. Coop. Sur.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Light larval populations occurring on alfalfa plantings in Watsonville area, Santa Cruz County, in San Juan Bautista, San Benito County, and Soledad area, Monterey County. (Cal. Coop. Rpt.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - OHIO - Extremely heavy numbers continue to be collected throughout State on forage crops. Many thousands per 10 sweeps of alfalfa in Medina County, northeast. (Thoburn, Lyon).

A SEED CHALCID (Bruchophagus sp.) - IDAHO - First adults of season observed working on experimental plot of crimson clover at Parma, Canyon County, May 19. (Waters).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Single male caught in Steiner trap at Miami, Dade County, May 20, 1964, along shore of Biscayne Bay at Pier No. 3, a commercial dock. Trap suspended in Melaleuca tree. (DeHaven). Men and equipment ready if spraying becomes necessary. More traps being set up in area so trap density of 100 per square mile within a 2-mile radius will be maintained. These traps will be checked daily. Within an additional 3-mile radius, trap density will be 60 per square mile and will be checked semiweekly. (Fla. Coop. Sur.). No additional adults trapped as of May 27. There is strong evidence that the trapped fly was possibly a "hitchhiker", since a ship from an infested area docked at Pier 3 on May 18. (PPC).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Continues heavy in Yuma County; controls applied for second time. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate infestation on milkweed in citrus grove known to have tristezia in Yuma County. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Remains a serious problem to citrus nurseries in Yuma area, Yuma County. (Ariz. Coop. Sur.).

A SWALLOWTAIL BUTTERFLY (Papilio zelicaon) - CALIFORNIA - Larvae causing light damage to citrus in Clovis, Fresno County. (Cal. Coop. Rpt.).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - FLORIDA - Moderate; generally infesting Citrus aurantium at Miami, Dade County. (Knowles, May 14).

Citrus Insect Situation in Florida - Mid-May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 30 percent of groves (norm 54 percent); 19 percent economic (norm 31 percent). Statewide population below average and in low range. Increase expected in scattered groves, becoming more general in June. Highest districts west and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 53 percent of groves (norm 30 percent); 34 percent economic (norm 16 percent). Population higher than in May of any prior year. Further increase expected with majority of groves having moderate to heavy infestations in June. Highest districts central, east and north. CITRUS RED MITE (Panonychus citri) infested 53 percent of groves (norm 65 percent); 27 percent economic (norm 42 percent). Although population below average, increase underway and about 10 percent of groves will have heavy infestations. Highest districts north and central. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 8 percent of groves (norm 21 percent); 2 percent economic (norm 3 percent). Very few important infestations expected after May. PURPLE SCALE (Lepidosaphes beckii) infested 82 percent of groves (norm 82 percent); 5 percent economic (norm 20 percent). Below normal and decreasing. Highest district south. GLOVER SCALE (L. gloverii) infested 72 percent of groves (norm 73 percent); 23 percent economic (norm 1 percent). Above normal; infestations becoming heavier in localized areas. Highest districts south and east. CHAFF SCALE (Parlatoria pergandii) infested 81 percent of groves (norm 40 percent); 26 percent economic (norm 1 percent). Above normal in all districts; little change expected. YELLOW SCALE (Aonidiella citrina) infested 51 percent of groves (norm 10 percent); 14 percent economic (norm 1 percent). Above normal; little change expected. Highest district central. BLACK SCALE (Saisettia oleae) infested 28 percent of groves (norm 24 percent); 15 percent economic (norm 9 percent). Recently increased to above normal level. Strong increase expected through June. Highest districts south and west. MEALYBUGS infested 28 percent of groves (norm 19 percent); 8 percent economic (norm 3 percent). Rapid increase since late April has taken statewide population above normal level. Further increase expected through mid-June. WHITEFLY population above normal and will continue high. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Active in most areas but recent wet weather slowed activity. (MacCollom, May 19). CONNECTICUT - Matured in Cheshire and Southington and near maturity in Niantic. Infestations expected to increase rapidly; controls recommended. (Savos, May 20). NEW YORK - Adult males found near Hudson, Columbia County, May 12; many males and females present in same orchard May 14 with considerable number of summer eggs laid. Population varies from orchard to orchard and from light to very heavy in Orleans County. (N.Y. Wkly. Rpt., May 18). PENNSYLVANIA - Severe to very few, depending upon treatments on apples in south central area. (Pepper). Egg laying underway in northeast area. (Adams). DELAWARE - Increasing in some areas of State on apples. (MacCreary). MARYLAND - Adults generally decreased at Hancock, Washington County, in check plots but large numbers of eggs remain. (U. Md., Ent. Dept.). VIRGINIA - Active in apple orchards in Winchester area, Frederick County. (Rock, May 13). OHIO - Motile mite populations average up to 0.4 per leaf and eggs range up to 4.3 per leaf on check apple trees at Wooster, Wayne County, northeast. (Forsythe). INDIANA - Damaging populations not yet reported in Vincennes area, Knox County; however, mites active and trees should be carefully checked to determine extent of current numbers. Special attention should be given blocks receiving no miticide other than oil earlier in season. (Cleveland, May 19). MICHIGAN - Egg laying heavy in some southwestern apple and plum orchards. (Carpenter).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Populations high in a few Mesa County peach orchards; 10-30 per leaf. (Bulla). CONNECTICUT - Active in orchard ground cover but not into trees. (Savos).

SPIDER MITES - WASHINGTON - Tetranychus mcdanieli, mainly immature stages, observed as heavy on apples near Grandview, Yakima County, during entomology field trip; light on treated apples in Wenatchee area, Chelan County, and light on prunes near Kennewick, Benton County. (Johansen). CALIFORNIA - Bryobia rubrioculus medium on apple trees in nursery in San Jose, Santa Clara County. (Cal. Coop. Rpt.). MISSOURI - Only few, scattered infestations reported in west central area on apples. If weather continues hot and dry, spider mite problems may increase rapidly. (Wkly. Rpt. Fr. Grs., May 20).

CODLING MOTH (Carpocapsa pomonella) - VERMONT - Pupation 50 percent May 22; first emergence expected this week, with egg laying by May 30. (MacCollom). NEW YORK - Not observed in Monroe County. (N.Y. Wkly. Rpt., May 18). PENNSYLVANIA - Some emergence noted in apple orchards of south central area. (Pepper). NEW JERSEY - Controls recommended in apple orchards. (Ins.-Dis. Newsltr.). MARYLAND - First adults observed May 14 at Hancock, Washington County. (U. Md., Ent. Dept.). INDIANA - More than half of caged, overwintering larvae emerged as adults at Vincennes, Knox County; first emergence from this cage reported May 4. Hatching of eggs anticipated at any time. (Cleveland, May 19). MICHIGAN - First emergence of season occurred May 16 in Van Buren County cage; 9 adults emerged by May 20. (Carpenter). WISCONSIN - Three adults caught night of May 18 and 1 on May 19 at Madison blacklight trap. First catch at this location during 1963 was May 26. (Wis. Ins. Sur.). MINNESOTA - Controls recommended. (Minn. Ins. Rpt.). MISSOURI - First entries of season occurred May 18 in both southeast and central areas; controls important. (Wkly. Rpt. Fr. Grs., May 20). KANSAS - Adults appearing in bait traps in Doniphan County, northeast. (Eshbaugh). COLORADO - Pupating in Larimer County apple orchards. (Thatcher). First adults taken in Clifton area, Mesa County, May 15. High numbers noted May 18 and 19; 30-50 per trap. Spray dates for Palisade area May 27 and for Clifton, Orchard, Mesa and Fruita May 28. (Bulla). UTAH - One adult taken at Logan, Cache County, May 20 in light trap. (Davis)

ORIENTAL FRUIT MOTH (Grapholitha molesta) - KANSAS - First wilted twigs noted on peaches in Doniphan County May 18. (Eshbaugh, Peters). INDIANA - Twig injury found May 18 in peach and almond at Vincennes, Knox County; more found May May 19. Damage about 3 days old. (Cleveland, May 19). OHIO - First terminal twig injury noted on peach trees on May 20 in Wayne County, northeast. (Forsythe). MISSOURI - New entries reported in west central area and quite a few entries noted in area north of Kansas City. (Wkly. Rpt. Fr. Grs., May 20). SOUTH CAROLINA - Damage increasing in experimental orchards near Pendleton, Anderson County. (Cochran, May 19). NORTH CAROLINA - Damaged peaches noted on dooryard tree in Halifax County. (Blackwell, Robertson). NEW JERSEY - Surveys in unsprayed peach orchards in Gloucester County revealed 20 specimens May 18 in Pitman and 2 on May 21. Collections in Glassboro for same dates were 11 and 3. (Ins.-Dis. Newsltr.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - VERMONT - Active on unsprayed blocks. (MacCollom). NEW YORK - No hatch observed in Monroe County. Egg masses difficult to find again this year in Orleans County. (N.Y. Wkly. Rpt., May 18). PENNSYLVANIA - Few larvae on apples in south central area but no pupae. (Pepper). NEW JERSEY - Controls recommended in apple orchards. (Ins.-Dis. Newsltr.). MARYLAND - Scarce this season in western fruit-growing sections. (U. Md., Ent. Dept.). VIRGINIA - Active in apple orchards in Winchester area, Frederick County. (Rock, May 13). KANSAS - Very light in apple orchard in Doniphan County, northeast. (Eshbaugh, Peters). MINNESOTA - Hatch appears nearly complete in southeast district. Larval feeding noted on water sprouts near center of trees. Controls recommended. (Minn. Ins. Rpt.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - NEW YORK - Most conspicuous insect in Ulster County orchards to date. (N.Y. Wkly. Rpt., May 18). CONNECTICUT - Appearing heavily in unsprayed trees in Glastonbury, Woodstock, Cheshire, Southington, New Haven and Storrs. (Savos, May 20). MARYLAND - Larvae common in unsprayed apple orchards in Hancock area, Washington County. (U. Md., Ent. Dept.). VIRGINIA - Active in apple orchards in Winchester area, Frederick County. (Rock, May 13).

PEACH TREE BORER (Sanninoidea exitiosa) - KANSAS - Can be found in most peach trees (both young and old) in Doniphan in Doniphan County, northeast. (Eshbaugh, Peters). COLORADO - Larvae in peach seedlings causing severe damage in Denver area. (Expt. Sta., Erickson). NEW MEXICO - Sanninoidea sp. seriously weakening or killing peach trees in dooryard plantings of Albuquerque homes, Bernalillo County. (N.M. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - VERMONT - Active during hot period May 22-23. (MacCollom). MASSACHUSETTS - First cutting of season observed on apple May 19 in Amherst, Hampshire County. (Wave). RHODE ISLAND - First adult of season jarred from tree in Kingston, Washington County, May 22. (Mathewson). CONNECTICUT - Adults recovered first time this year in New Haven; egg-laying scar found also. Increase expected; controls recommended on faster growing apple and peach varieties first. Controls recommended on homeowner trees. (Savos). NEW JERSEY - Surveys in unsprayed peach orchards in Gloucester County showed 18 specimens May 18 and again on May 21 at Pitman. Collections at Glassboro on same dates were 16 and 12 specimens. (Ins.-Dis. Newsltr). DELAWARE - Eggs and very young larvae now present in small, unsprayed peaches in Kent and Sussex Counties. (MacCreary). MARYLAND - First damaged fruit found May 19 in check plots. Adult observed feeding on apple May 15. (U. Md., Ent. Dept.). OHIO - Considerable egg-laying injury noted on unsprayed plums and apples in Wayne County, northeast. (Forsythe). WISCONSIN - Adults feeding on apple blossoms in Door County. (Wis. Ins. Sur.). MISSOURI - Few reported on unsprayed plums in southeast area. (Wkly. Rpt. Fr. Grs., May 20).

CURCULIOS - NEW JERSEY - Controls recommended in apple orchards. (Ins.-Dis. Newsltr.). MINNESOTA - Active; controls recommended. (Minn. Ins. Rpt.). MASSACHUSETTS - Now number one pest on apples, peaches and pears. Egg-laying scars found on apples week of May 17; controls recommended. (Wave).

LESSER PEACH TREE BORER (Synanthedon pictipes) - KANSAS - Causing severe damage to some peach trees in Doniphan County, northeast. (Eshbaugh). INDIANA - First occurrence in field at Vincennes, Knox County, noted May 4. Emergence steady and gradual since that date, with heavy emergence noted May 16-19. (Cleveland, May 19). OHIO - First adult of season emerged May 15-18 in Wooster area, Wayne County, northeast. (Forsythe).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Moderate in peach; all left twigs near Kennewick, Benton County. (Entomol. Field Trip). COLORADO - Nearly all in pupal stage in Mesa County peach orchards. (Bulla).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Larvae easily found on unsprayed trees. (Savos, May 20). PENNSYLVANIA - Moderate on small block of apples in Centre County. (Gesell, May 13). MICHIGAN - Larvae caused some injury; nearing pupation on Montmorency cherry in northern part of Lower Peninsula. (McManus). WISCONSIN - Larvae forming nests and feeding in Door County. (Wis. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - PENNSYLVANIA - Larvae well developed on cherry and other trees in south central area; infestations quite low. (Pepper).

A TENT CATERPILLAR (Malacosoma sp.) - WASHINGTON - Light on apple and cherry in Vancouver, Clark County. (Shanks).

CANKERWORMS - NORTH DAKOTA - Became a problem on fruit trees in eastern part of State; some treatment underway. (Frye). CONNECTICUT - Abundance very low this year; scattered localities may have trouble. (Savos, May 23).

CLIMBING CUTWORMS - UTAH - Caused light injury in southern Box Elder County orchards. (Knowlton).

APPLE APHID (Aphis pomi) - RHODE ISLAND - Small infestations found with difficulty on trees in West Kingston, Washington County; surphid fly larvae usually present. (Mathewson). CONNECTICUT - Abundance low in most of State but new colonies found in New Haven, Cheshire and Southington; fewer predators being found so increase expected. (Savos, May 20). PENNSYLVANIA - Alates present on apples in south central area. (Pepper). MISSOURI - Very heavy on unsprayed apple trees in southeast area; yellowing leaves. (Wkly. Rpt. Fr. Grs., May 20).

ROSY APPLE APHID (Anuraphis rosea) - INDIANA - Populations rather substantial in some apple blocks in Vincennes area, Knox County. (Cleveland, May 19). VIRGINIA - Active in apple orchards in Winchester area, Frederick County. (Rock, May 13). MARYLAND - Generally present and causing moderate amount of leaf curl on apples in Hancock area, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - No alates noted on apples in south central area but expected soon. (Pepper). CONNECTICUT - Colonies observed in Cheshire and Southington). (Savos, May 20).

APHIDS - UTAH - Anuraphis helichrysi curling plum leaves at Willard, Box Elder County. (Knowlton). NEW MEXICO - Eriosoma lanigerum becoming problem in apple orchards in Los Lunas-Belen area, Valencia County, where proper control measures not used. (N.M. Coop. Rpt.). OHIO - Myzus cerasi producing young and curling leaves of sweet cherry in Wayne County, northeast. (Forsythe). PENNSYLVANIA - Some fairly heavy infestations of Myzus persicae present on south central area peaches, even though 2 applications made earlier. Rhopalosiphum fitchii alates present on apples in same area. (Pepper).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Moderate infestations, especially of fourth and fifth instars and new adults, noted on treated pears in Wenatchee area, Chelan County, during entomology field trip. (Johansen).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - MASSACHUSETTS - Hatching probably began about May 17 at Amherst, Hampshire County. Tunneling on young fruit now visible. (Wave). CONNECTICUT - Active in all areas where normally occurs, controls recommended. (Savos).

PEAR-SLUG (Caliroa cerasi) - ALABAMA - Causing considerable damage to isolated young pear trees in Lee County. (Barwood).

APPLE LEAFHOPPER (Empoasca maligna) - PENNSYLVANIA - Averaged 5 per leaf on apples in Wayne County; leaves well stippled. (Gesell).

CIGAR CASEBEARER (Coleophora serratella) - ALABAMA - Few groups of pecans partially defoliated by heavy larval buildup in Geneva County. (Willams).

PECAN NUT CASEBEARER (Acrobasis caryae) - NEW MEXICO - Many homeowners reporting larvae in terminal growth of pecan trees at Carlsbad, Eddy County. (N.M. Coop. Rpt.). TEXAS - Eggs being found on nuts in Palo Pinto County; infestation appears light. (Turney). OKLAHOMA - Egg laying started in Jefferson and Love Counties, south central; none noted in Bryan County. Expected to spread and increase in intensity. (Okla. Coop. Sur.). GEORGIA - Light to moderate on pecan in south central and southwest. (Johnson).

A CITHERONIID MOTH - TEXAS - Larvae of unspecified species reported over wide area of State feeding on pecan foliage. (Meisch).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Few broods observed on pecans in Mobile County. (Buttram).

GIANT BARK APHID (Longistigma caryae) - NORTH CAROLINA - Present on pecan trees in Gaston County. (Sproles).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on almond trees in Paso Robles, San Luis Obispo County. (Cal. Coop. Rpt.).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Egg laying and larval activity underway; webbing of clusters in vineyards found in Berrien and Van Buren Counties on May 18. (Carpenter).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Larvae damaging home planting of grapes in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

A GALL MIDGE (Lasioptera vitis) - NEW YORK - Active in Ulster County on May 8; earlier than average. (N.Y. Wkly. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - GEORGIA - Light on Muscadine grape foliage in Morgan County. (West).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Appearing in home gardens on grapevines and other plants. (Barwood).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Nymphs, probably this species, heavy on grape leaves in Hanford, Kings County. (Cal. Coop. Rpt.).

A LEAFHOPPER (Erythroneura elegantula) - CALIFORNIA - Medium and causing noticeable feeding damage to grapes in Sanger, Fresno County. (Cal. Coop. Rpt.).

A SPIDER MITE (Oligonychus platani) - CALIFORNIA - Medium populations on grapevines in Fresno, Fresno County, probably this species. (Cal. Coop. Rpt.).

CURRANT BORER (Ramosia tipuliformis) - WASHINGTON - Pupae noted as moderate in currants at Prosser, Benton County, during entomology field trip; adults observed first time this season. (Cone).

A CRANBERRY TIPWORM (Dasyneura vaccinii) - NEW JERSEY - Larvae found in highly advanced portions of cranberry bogs. (Ins.-Dis. Newsltr.).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Adults observed but no larvae found in blueberries. First controls should be applied about May 26 in Atlantic County and few days later for Burlington County. (Ins.-Dis. Newsltr.).

LEAF ROLLERS - NEW JERSEY - Causing some damage to foliage and green fruit of blueberries. Few larvae of Sparganothis spp. found in highly advanced portion of cranberry bogs. (Ins.-Dis. Newsltr.).

LEAFHOPPERS - NEW JERSEY - Eggs hatched but flight period of winged stage which transmits blueberry stunt due about first week of June. (Ins.-Dis. Newsltr.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MASSACHUSETTS - Adults actively feeding on newly emerged potatoes; controls recommended. (Wave). RHODE ISLAND - Overwintered adults abundant and attacking emerging potatoes at Kingston and adjacent potato-growing areas in Washington County. (Kerr, Mathewson). NEW YORK - Early planted potatoes emerging in Suffolk County; adults leaving hedgerows on warm days and laying eggs on potatoes. (N.Y. Wkly. Rpt., May 18). NEW JERSEY - Very numerous in some potato fields; egg laying begun. Controls on potatoes and tomatoes recommended. (Ins.-Dis. Newsltr.). MARYLAND - Adults continue generally abundant on potatoes and tomatoes on Eastern Shore. Small larvae causing noticeable injury to commercial potatoes near Pocomoke City, Worcester County. (U. Md., Ent. Dept.). VIRGINIA - Hatching well underway on Eastern Shore and should accelerate; activity of overwintered adults tapered off somewhat, but many eggs being deposited. (Hofmaster). ALABAMA - Causing some damage to commercial and home garden tomatoes in Jefferson County. (Bagby, Johns). Larvae and adults widespread and causing considerable damage to potatoes in Fairview community, Coffee County. (Stephenson). OHIO - Beginning buildup on potato plants in southwest area; 52 young larvae counted on one potato plant in southern Brown County. Adults and eggs on same plant. (Lyon).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adult populations highest in 10 years in Weld County on matrimony-vine. Counts per 100 sweeps as follows: 300 at Ault, 200 at La Salle, 1,200 at Gilcrest, 1,000-4,000 at Platteville, and 1,200 at Fort Lupton. Egg deposition of 1-10 per leaf noted. (Jenkins). NEBRASKA - Survey May 18 showed all stops negative; Lycium in poor condition. (Hagen).

POTATO APHID (Macrosiphum euphorbiae) - DELAWARE - Present on some potatoes in Kent County. (Burbutis). MARYLAND - Light to moderate on commercial potatoes at Pocomoke City, Worcester County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Present but scarce on some potatoes in Kent County. (Burbutis). NORTH DAKOTA - Trace numbers appearing in weedy areas in northeast. (Frye).

OMNIVOROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Larvae medium in tomato fields in San Jan Bautista, San Benito County. (Cal. Coop. Rpt.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Surveys of properties infested in 1963 continue negative. (Newman).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - WISCONSIN - Adults appearing in Dane County blacklight traps. (Wis. Ins. Sur.). DELAWARE - Adults abundant and causing rather heavy injury to young cucurbits in several commercial fields in Sussex County. (Burbutis). MASSACHUSETTS - Out of hibernation and taken in sweepings in alfalfa. (Wave).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - DELAWARE - First adults of season taken in blacklight trap in Sussex County, May 20. (Burbutis).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Causing some damage to melons at ground level in Yuma County. (Ariz. Coop. Sur.).

SQUASH BUG (Anasa tristis) - TEXAS - Continues heavy on watermelons in Washington, Milam and Franklin Counties. (Texas Coop. Rpt.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Adults caused conspicuous injury to newly emerging curcubits at several locations in Wicomico County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - Damaging commercial cabbage near Beaufort, Carteret County. (Taylor). GEORGIA - Heavy on cabbage in Spalding County. (Dupree). FLORIDA - Light to severe on 57 percent of 200 cabbage plants at Sanford, Seminole County. (Desin). OKLAHOMA - Heavy and severely damaging cabbage in home gardens in Marshall County, south central. (Okla. Coop. Sur.). NEW MEXICO - Occasional larva found in lettuce fields in Dona Ana County. (N.M. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Larvae appearing rather heavy on cabbage in Lee County; many adults in flight and depositing numerous eggs. (Barwood). NEW YORK - Adults noted in flight in Monroe County. (N.Y. Wkly. Rpt., May 18).

CABBAGE MAGGOT (Hylemya brassicae) - MICHIGAN - Larvae heavy in radishes in research plots in Clinton County. (Wells). NEW JERSEY - Four traps at Great Meadows, Warren County, yielded 25 adults May 20; 2 traps at Cedarville, Salem County, yielded 2 adults same date. Surveys made in cabbage and other cole crops. (Ins.-Dis. Newsltr.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - KANSAS - Injured 100 percent of snap bean leaves where controls not applied. (Eshbaugh). OHIO - Adults feeding on garden beans in Highlands County, southwest. (Lyon). MARYLAND - Adults causing light to moderate foliage injury on snap beans at several locations on Eastern

Shore. (U. Md., Ent. Dept.). GEORGIA - Moderate on lima and snap beans in Spalding County. (Dupree).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - First adults of season present on snap beans in eastern Sussex County; causing slight injury. (Burbutis). GEORGIA - Light to moderate on beans in south central area. (Johnson).

SEED-CORN MAGGOT (Hylemya platura) - VERMONT - Adults observed May 16; treated seed recommended. (MacCollom). VIRGINIA - Cool, wet and late spring afforded optimum conditions for development on Eastern Shore. Some reports of poor stands of snap beans received. (Hofmaster, May 19).

PEA APHID (Acyrthosiphon pisum) - DELAWARE - Increase continues on untreated peas in areas of Sussex County. (Burbutis). WISCONSIN - Ranged 0-3 per 10 sweeps on peas in Dane, Rock, Walworth, Iowa, La Crosse and Sauk Counties. (Wis. Ins. Sur.).

ASPARAGUS BEETLES (Crioceris spp.) - VERMONT - Active in all areas; controls recommended. (MacCollom). MARYLAND - Adults and eggs of C. asparagi and C. duodecimpunctata heavy on asparagus foliage at Snow Hill, Worcester County. (U. Md., Ent. Dept.). UTAH - C. asparagi and C. duodecimpunctata caused light to moderate damage in Davis County fields. (Knowlton). IDAHO - Adult damage by C. asparagi and C. duodecimpunctata little heavier this spring on roadside and ditchbank asparagus than in past few years in Canyon County. (Waters).

THRIPS - NEW JERSEY - Causing trouble in some asparagus fields; controls recommended. (Ins.-Dis. Newsltr.).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Survey in Cedarville area, Cumberland County, yielded 297 adults from 8 traps on May 20. Total of 195 previous week. Four traps at Great Meadows, Salem County, yielded 52 adults on May 20 and 8 on May 14. (Ins.-Dis. Newsltr.). MICHIGAN - Some adults observed; larval populations apparently low. No commercial problems reported. (Janes).

ONION ROOT MITES - NEW YORK - Continue active in several areas in Orange County. (N.Y. Wkly. Rpt., May 18).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Taken May 14 in Loma, Mack and Fruita districts, Mesa County; populations light. (Bulla).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - Eggs and larvae on sugar beets in most fields in Walla Walla and Yakima Counties; eggs abundant with some hatching noted. (Wallis).

RED-BACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Severe damage on small sugar beet plants observed during entomology field trip probably caused by this species in Grandview, Yakima County. (Johansen).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Young nymphs and wingless adults on prickly lettuce (Lactuca serriola) along drainage canal. Only wild host colonized at Winchester, Grant County. (Powell). Apterae and alatae appearing in small numbers in all eastern sugar beet-growing areas. (Wallis).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - High numbers noted. (Minn. Ins. Rpt.). MICHIGAN - No adults taken in sweepings May 19 in Berrien, Cass, Ingham and Livingston Counties. (Newman, Janes).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Increasing numbers of eggs found in Dona Ana County lettuce fields. Numbers of adults appearing in light traps in Mesilla and Pecos Valleys increasing. (N.M. Coop. Rpt.).

CARROT BEETLE (Bothynus gibbosus) - IDAHO - First flying adult observed in Canyon County May 19. (Waters).

A WEEVIL (Hyperodes texana) - TEXAS - Surveys for this carrot pest negative in Zavala and Uvalde Counties. (Tapscott, Cox, Meisch).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - KANSAS - Light on strawberries in Doniphan County, northeast. (Eshbaugh, Peters). NEW JERSEY - Active on strawberries; controls recommended. (Ins.-Dis. Newsltr.). VERMONT - Reported in Charlotte, Chittenden County. (MacCollom).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - NEW JERSEY - Flight period which transmits virus disease now at peak and will remain high for next 2 weeks. Controls recommended. (Ins.-Dis. Newsltr.).

WHITEFLIES - NEW JERSEY - Now active on strawberries; controls recommended. (Ins.-Dis. Newsltr.).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Infesting strawberries at location near Blacksburg, Montgomery County. (Tarpley).

SPITTLEBUGS - NEW YORK - Appearing on strawberries in Oswego County. (N.Y. Wkly. Rpt., May 18).

LEAFHOPPERS - NEW JERSEY - Now active on strawberries; controls recommended. (Ins.-Dis. Newsltr.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Adults causing light damage to strawberry fruit in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

A SAWFLY (Empria maculata) - INDIANA - Defoliated strawberries in eastern Tippecanoe County May 14. (Dobson).

SPIDER MITES (Tetranychus spp.) - NORTH CAROLINA - Extremely numerous on strawberries in Buncombe County. (Palmer, Robertson).

GOLDEN TORTOISE BEETLE (Metriona bicolor) - MARYLAND - Adults causing conspicuous foliage injury to sweetpotatoes at several localities in Wicomico County. (U. Md., Ent. Dept.).

RHUBARB CURCULIO (Lixus concavus) - OHIO - Several adults collected throughout State; severe boring damage to rhubarb observed in Pickaway County, central area. Averaged 15 punctures per stalk. (Lyon). Controls necessary in Pike County, south central area. (Fladt). Damaged rhubarb and adults observed in Meigs County, southeast. (Blakeslee). Controls necessary in Ross County, south central. (Glass).

FLEA BEETLES - NEVADA - Heavy on seedling sugar beets in Lovelock, Pershing County; treatments underway. (Ferraro). Light, spotted infestations present in Fallon, Churchill County. (York). UTAH - Additional damage reported on very young sugar beets in Salt Lake, Box Elder and Cache Counties. (Knowlton). KANSAS - Damaging radishes, spinach and beets in Doniphan County, northeast. (Eshbaugh). NORTH DAKOTA - Trace numbers of Epitrix cucumeris in weedy areas in northwest. (Schulz). WISCONSIN - E. cucumeris overwintered adults causing noticeable injury to potato and tomato plants in home gardens in Dane County. (Wis. Ins. Sur.). MICHIGAN - Adults of unspecified species and feeding injury moderate to heavy on radishes in Lenawee County and on some potato plants in Monroe County. (Bless, Newman). NEW YORK - Flea beetles appearing on newly set plants in Westchester County. (N.Y. Wkly. Rpt., May 18). MARYLAND - Epitrix spp. continue to injure unprotected potatoes and tomatoes in all sections. Phyllotreta spp. common on cabbage, radish and mustard greens at several places

in State. Chaetocnema confinis adults abundant and causing conspicuous foliage injury to newly transplanted sweetpotatoes at several localities in Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Activity of E. cucumeris has been very light on Eastern Shore. (Hofmaster, May 19). E. hirtipennis adults active on potatoes in home garden in Pittsylvania County. (Dominick, May 15). ALABAMA - E. fuscula locally heavy in gardens on eggplants in Florala area, Covington County; some plants killed. (Stephenson).

APHIDS - NEW MEXICO - Minor problem in lettuce fields in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - Heavy, localized populations in Franklin County damaging watermelons. (Texas Coop. Rpt.). ALABAMA - Causing some damage to commercial and home garden tomatoes in Jefferson County. (Bagby, Johns).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MINNESOTA - Infestations appear serious in South St. Paul, Dakota County. (Minn. Ins. Rpt.). ARIZONA - Light to heavy on cantaloups in Yuma County. (Ariz. Coop. Sur.).

SLUGS AND SNAILS - VERMONT - Active in home gardens. (MacCollom).

TOBACCO INSECTS

WIREWORMS (Conoderus spp.) - SOUTH CAROLINA - Causing concern in Berkeley County; C. vespertinus quite active in some areas of county. (May 8). Damage from unspecified species heavy in several tobacco fields in Dillon County; controls reasonably successful in Williamsburg County. (Nettles et al., May 14). NORTH CAROLINA - C. falli and C. vespertinus caused considerable injury in several Carteret and Craven County fields. Most larvae collected were C. falli but sample small. (Mount).

FLEA BEETLES - OHIO - Moderate feeding damage on tobacco seedlings in southwest area. (Lyon). SOUTH CAROLINA - Causing concern in Berkeley County. Damage in tobacco rather widespread in Dorchester County. (May 8). More numerous on tobacco plant beds than in 1963 in Dillon County; causing considerable damage to newly transplanted tobacco in Marion County. (Nettles et al., May 14). VIRGINIA - Epitrix hirtipennis adults active on newly set tobacco in Pittsylvania County. Generally light to medium. (Dominick, May 15). GEORGIA - E. hirtipennis moderate on tobacco in south central area. (Girardeau).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to heavy on tobacco in south central area. (Johnson).

A HORNWORM (Protoparce sp.) - GEORGIA - Larvae light on tobacco in south central area. (Girardeau).

A LOOPER (Trichoplusia sp.) - NORTH CAROLINA - Damaging tobacco in number of fields near Maysville, in Onslow County. (Halsey, Jones).

POTATO STALK BORER (Trichobaris trinotata) - GEORGIA - Light on tobacco in Toombs County. (Daniel).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in south central area. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Adults still moving in from hibernation quarters in Rio Grande Valley, but reports indicate light populations. (Deer). Activity remains very light in McLennan and Falls Counties. (Cowan et al.). MISSISSIPPI - First weevil in the field not on trap plants found in delta area this week. Female collected in Leflore County field on May 21. One male removed from screen hibernation cages. (Pfrimmer et al.). TENNESSEE - Total of

48 adult overwintering weevils captured on flight screens in western area during week; number much higher than at this time in 1963. (Mullett, Locke, Thomas). SOUTH CAROLINA - Adults feeding on buds of cotton in Aiken, Dorchester, Hampton and Williamsburg Counties. (Sparks, May 19).

BOLLWORMS (Heliothis spp.) - GEORGIA - Larvae 10 per 100 terminals in field of cotton in Irwin County. (Johnson, May 19). ALABAMA - Numerous eggs and young larvae in field of 6 to 7-leaf cotton in Tallapoosa County. (McQueen).

BOLLWORM (Heliothis zea) - ARIZONA - Adults picked up in light traps in Tucson area. Small numbers of adults found in cotton fields in Pinal and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - A total of 31 larvae found on several hosts other than cotton in McLennan and Falls Counties. (Cowan et al.).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Lightly infesting wild cotton at Ft. Myers, Lee County. (Gardner, May 20). ARIZONA - The continued weather has caused an increase in moth emergence from experimental cages at Safford. On May 19, total of 51 moths emerged making a grand total of 148 moths for the week. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - A 100-acre field of 6 to 7-leaf cotton in Hale County heavily attacked by 1-2 larvae per plant. Development third to fourth instar. Controls applied. (Glass).

CUTWORMS - SOUTH CAROLINA - Destroyed 7-acre stand of cotton in Colleton County on May 8. Reported present on cotton in Calhoun, Edgefield, Greenwood and Lexington Counties. (Sparks, May 19). TEXAS - Destroyed stand of cotton in one small field and damaged stand in several fields in one area in McLennan and Falls Counties. (Cowan et al.).

COTTON APHID (Aphis gossypii) - GEORGIA - Light on cotton in south central and southwest areas. (Johnson). ALABAMA - Considerable numbers and damage to cotton in Marengo and Tuscaloosa Counties. (Jones, Holstun). TEXAS - Remains light but general on cotton in McLennan and Falls Counties. (Cowan et al.). ARIZONA - Continues light with few scattered heavy infestations in Maricopa, Pinal, Pima, Graham and Yuma Counties. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations in Rio Grande Valley appear generally lighter than previous week; however, heavy infestations reported from Rio Grande City, Edinburg and Raymondville areas. (Deer). Heavy buildup occurred in untreated fields in McLennan and Falls Counties, with damaging populations present in many fields. Averaged 3.4 per 100 terminals in treated fields and 40.3 per 100 terminals in untreated fields. Overall average 19.6 per 100 terminals with a maximum of 88.0. (Cowan et al.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Evident in Pima, Pinal and Maricopa Counties; averaged 30 per 100 plants. (Ariz. Coop. Sur.).

A FLEA BEETLE - GEORGIA - Moderate infestation on cotton in Spalding County. (Beckham).

THRIPS - GEORGIA - Light to heavy infestation on cotton in south central and southwest areas. (Johnson). MISSOURI - Light on cotton in southeast. (Harrendorf, Jones). MISSISSIPPI - Total of 69 fields sampled in delta area; none found in 8 fields, light in 56 fields and medium in 5 fields. Average number per plant in infested fields 0.54. Movement into cotton appears to have increased sharply and many fields being treated. Majority of specimens Frankliniella fusca. (Pfrimmer et al.). TEXAS - In McLennan and Falls Counties, infestations of thrips light in 22 fields, medium in 5 and heavy in 5. (Cowan et al.). ARIZONA - Frankliniella spp. increasing in most cotton areas, particularly in untreated fields. Averaged 28 per plant in Graham County and 15-25 per plant in Pinal and Maricopa Counties. Damage to small plants evident in Stanfield and Buckeye areas. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - IDAHO - First new attacks of season observed in decked logs at exposed site along North Fork of Clearwater River above Orofino, Clearwater County, May 16. Egg galleries 0.75 inch long, indicating attacks occurred recently. No eggs present. Adult predators, Enoclerus sphegeus (a clerid beetle) and Temnochila virescens (an ostomid beetle), also present on logs as were numerous cerambycid beetles and a weevil, Pissodes fasciatus. Phenological observations in area included ponderosa pine terminal growth 5 to 9 inches in length and flowering of serviceberry. (Furniss).

PINE ENGRAVER (Ips pini) - OHIO - Infesting twigs of pine near Cleveland, Cuyahoga County, northeast. (Buscher, Holdsworth).

PINE WEEVILS - NEW YORK - Pissodes approximatus and Magdalis sp. feeding on branches and new shoots of Scotch pine at Martville, Cayuga County, May 17. (N.Y. Wkly. Rpt.). MICHIGAN - Hylobius radicis larval infestations common on Scotch, jack and red pines in western and northern portions of Lower Peninsula; third through seventh instars found; all stages present except pupae. First egg laying observed May 11 in Newaygo County. (Wilson). FLORIDA - Cossonus corticola severely infesting bark of Pinus sp. at Fort Pierce, St. Lucie County, May 15. (Campbell).

LARCH CASEBEARER (Coleophora laricella) - IDAHO - Larvae feeding on new growth; found for first time in Moscow, Latah County. This apparently indicates a rapid southward spread of this introduced species is beginning to occur. (Schenk). WISCONSIN - Pupation underway in Dane County. Severe defoliation of larch occurred in Grant County during week ending May 15. (Wis. Ins. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEW YORK - Light in 10-acre Scotch pine plantation at Martville, Cayuga County, May 17. (N.Y. Wkly. Rpt.).

PINE NEEDLE MINER (Exoteleia pinifoliella) - RHODE ISLAND - Very common on pitch pine in Kingston, Washington County. Some appear about to pupate. (Mathewson, Veilleux).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Larvae mostly in third stage in Pine County. Only known infested area is near Sturgeon Lake. (Minn. Ins. Rpt.).

SPRUCE NEEDLE MINER (Taniva albolineana) - COLORADO - Unusually abundant in Larimer County; pupation underway. (Thatcher). WISCONSIN - Larvae in last stage May 13 in Dane County; pupation now underway. (Wis. Ins. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - RHODE ISLAND - Eggs hatched; crawlers on needles in Kingston, Washington County. (Mathewson). NEW YORK - Crawlers present and settling on Scotch pines at Martville, Cayuga County; approximately 50 percent of overwintering eggs hatched by May 17. (N.Y. Wkly. Rpt.). VIRGINIA - Infesting pines at a location in Virginia Beach area. (Rowell, Cockrell). OHIO - Crawlers all out from under old scales in Belmont County, east central. (Ellis). INDIANA - Infesting Scotch pine plantation in Jefferson County (southeast). (Schuder). WISCONSIN - Crawlers emerged in Dane County area. Now is best time to apply controls, if warranted. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Spittle masses numerous and prominent on jack pine in central and east central districts again this year. No serious damage noted from heavy attacks on jack pine during 1963. (Minn. Ins. Rpt.). DELAWARE - Nymphs abundant on loblolly and Virginia pines in western Sussex County. (Burbutis).

BALSAM TWIG APHID (Mindarus abietinus) - WISCONSIN - Colonies causing distortion of needles of fir at a Dane County location. (Wis. Ins. Sur.). INDIANA - Infesting Douglas-fir in ornamental plantings in Elkhart County (northeast). (Schuder).

PINE APHIDS (Cinara spp.) - GEORGIA - C. strobi moderate on white pine in Polk County. (Stowe, May 12). WYOMING - Light infestations of Cinara sp. appearing on limber pine at Laramie, Albany County. (Fronk, Marks).

A WOOLLY LARCH APHID (Chermes strobilobius) - WISCONSIN - Populations building up in a Dane County location. (Wis. Ins. Sur.).

A GALL APHID (Chermes sp.) - NORTH DAKOTA - Becoming active on new growth on spruce; galls not yet formed. (Frye).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - Adult emergence nearly complete in central region; first-generation larvae should be appearing in 1-2 weeks. (Minn. Ins. Rpt.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - MICHIGAN - Larval infestations scattered in southern counties; plantations with 12 or more colonies per tree reported. (Wilson, Newman, Siefert).

WHITE-PINE SAWFLY (Neodiprion pinetum) - IOWA - Adults collected on white pine Christmas tree planting at Indianola, Warren County; larvae already active. (Smart, Iowa Ins. Inf.; May 18).

A CONIFER SAWFLY (Neodiprion sp.) - MISSOURI - Pines along short windbreak in McDonald County 10-90 percent defoliated. (Houser, Thomas, Wood).

SPRUCE SPIDER MITE (Oligonychus ununguis) - NEW YORK - Eggs have been hatching for over 2 weeks in Martville area, Cayuga County; nymphal development rapid. Active on 1963 growth of Norway spruce in Chemung County. (N.Y. Wkly. Rpt.; May 18). PENNSYLVANIA - Extremely abundant on Norway spruce in Greene County; webs extending from near base to top of 30-foot tall tree and on all branches. Similar situation exists elsewhere in Greene County and in southern Washington County on ornamentals. (Udine, May 13). Heavy on Norway spruce in Bradford County. (Gesell).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - RHODE ISLAND - Larvae leaving nests in Providence County. Many complaints being made. (Mathewson, King, Buonaiuto, Veilleux. CONNECTICUT - Reported from New Haven, New Haven County, and from Storrs, Tolland County. (Savos, May 20). OHIO - Many wild cherry trees severely defoliated over State. Larvae mostly in last stage; pupation eginning. (Lyon). MICHIGAN - Tents and larval feeding general on wild cherry over Lower Peninsula. (Wilson, Newman, Lincoln). NORTH DAKOTA - Larval feeding underway on wild cherry in shelterbelt plantings in southeast area. (Brandvik).

FOREST TENT CATERPILLAR (Malacosoma disstria) - IDAHO - Egg clusters abundant on ornamental trees in Bonners Ferry area, Boundary County. Hatching began May 12. (Ingle).

TENT CATERPILLARS (Malacosoma spp.) - VERMONT - Injury reported on many ornamental and shade trees. (MacCollom, May 19). NEW YORK - Small numbers present along north shore of Long Island; more numerous along south shore areas. Larvae active in Suffolk County and in Onondaga County. (N.Y. Wkly. Rpt., May 18). WASHINGTON - Heavy on wild rose at Vancouver, Clark County. (Shanks).

SPRING CANKERWORM (Paleacrita vernata) - NEBRASKA - Stripping of foliage heavy in Gage County. (Walstrom). MICHIGAN - Larval feeding reported heavy on some ornamental trees in Flint, Genesee County, and in Lansing, Ingham County. (Ruth). CONNECTICUT - One second-stage larva found at Storrs, Tolland County. (Savos).

CANKERWORMS - NORTH DAKOTA - Moderate to heavy larval feeding on elm, boxelder and other shade and fruit trees underway in eastern areas. (Frye). MINNESOTA - Larvae in middle stages of development and beginning to consume large amounts of foliage. Control still warranted; thorough application to entire tree essential to good control. (Minn. Ins. Rpt.). IOWA - Feeding becoming evident in southern third of State in unsprayed communities. Infestation light in east central area; 20-25 percent of leaves show 25-30 percent loss of leaf surface. (Iowa Ins. Inf., May 18). NEW JERSEY - Numerous throughout State. (Ins.-Dis. Newsltr.). NEW YORK - Small numbers present in northern shore areas of Long Island; active in Suffolk County. (N.Y. Wkly. Rpt., May 18). CONNECTICUT - Second-stage larvae active in New Haven. Appear to be much less abundant than in 1963. (Savos, May 20). RHODE ISLAND - Observed in Kingston (Washington County), Warwick (Kent County), and in Lincoln and Cranston (Providence County). No record of widespread, general infestation, however. (Mathewson, Buonaiuto, Veilleux, D'Andrea).

LEAF ROLLERS - NEW JERSEY - Numerous throughout State; especially active on pin oak. (Ins.-Dis. Newsltr.). NORTH DAKOTA - Archips rosaceanus larvae rolling leaves of wild cherry in southeast area. (Frye). IDAHO - Spotted infestations of what is probably Archips rosaceanus found on private hedges at Nampa, Canyon County. Larvae abundant where found. (Bechtolt). NEVADA - Early-stage larvae of Choristoneura zapulata infesting several ornamental shrubs in Reno, Washoe County. (Bechtel, Lauderdale).

GYPSY MOTH (Porthetria dispar) - VERMONT - Exceptionally heavy in North Burlington, Chittenden County. (MacCollom, May 19). CONNECTICUT - Larvae reported at Bantam, Litchfield County, and from New Haven, New Haven County. (Savos, May 20).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - UTAH - Larvae damaged elm foliage near Ogden, Weber County. (Knowlton). CALIFORNIA - Larvae heavy locally on Chinese elms in Livermore, Alameda County. Infestations quite common this spring. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ARIZONA - Larvae found on elms in several areas of Phoenix, Maricopa County. (Ariz. Coop. Sur.). NEVADA - Eggs present in Lovelock, Pershing County, and in southern Washoe County. (Bechtel, Ferraro). OKLAHOMA - Extensive defoliation occurring throughout State; chemical controls initiated. (Okla. Coop. Sur.). MISSOURI - First-stage larvae heavy on elms in southwest area. (Houser, Thomas, Wood). ALABAMA - Appearing in quite heavy numbers and in widespread areas of Chilton County and other central area counties on elms. (Helms). VIRGINIA - Larvae infesting elms at location in Richmond. Egg masses present. (Tarpley, Andrews). RHODE ISLAND - Adults moving out on leaves statewide. (Mathewson, Veilleux).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - RHODE ISLAND - Observed in Lincoln, Providence County. Probably active statewide. (Veilleux). OHIO - Larvae and adults present on 2 large weeping willow trees in Ross County; 25-30 percent of leaves skeletonized. (Walker, Lyon).

LEAF BEETLES - ALABAMA -Trirhabda bacharidis quite heavy on groundsel-tree (Baccharis halmifolia) in Mobile County. (Seibels). FLORIDA - Eurypepla jamaicensis severe on Geiger-tree (Cordia sebestena) at Key Largo, Monroe County, May 8. (Brown).

BRONZE BIRCH BORER (Agrilus anxius) - MARYLAND - This species and Neoclytus acuminatus (red-headed ash borer) emerging in West Gate area of Montgomery County; numerous paper birch trees along streets infested with A. anxius with a number reported killed. N. acuminatus observed emerging from cut birch logs. (Hambleton).

WOOLLY ALDER APHID (Prociphilus tessellatus) - GEORGIA - Heavy on maple in Fayette County. (Dupree).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - UTAH - Damaging lilac, willow and poplars on home lots at Logan, Cache County. (Knowlton). COLORADO - Eggs near hatching in Larimer County; crawlers expected within 7-10 days. (Thatcher, Jenkins). CONNECTICUT - Overwintering eggs should be hatching within next 1-2 weeks. (Savos).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Crawlers heavy on elm trees in Stillwater area, Payne County. (Okla. Coop. Sur.).

BIRCH LEAF MINER (Fenusa pusilla) - VERMONT - Activity prevalent. (MacCollom, May 19). MASSACHUSETTS - Eggs hatched; larvae mining leaves. (Wave). CONNECTICUT - All eggs probably hatched. (Savos). NEW JERSEY - Active and quite heavy in central counties. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Heavy on birch in Greene County; larvae about full grown. (Udine).

ERIOPHYID MITES - RHODE ISLAND - An undetermined species common on needle bundles of pitch pine in West Kingston, Washington County. New galls formed by Vasates quadripedes appearing on cut-leaf maple statewide. Pouch galls, probably formed by Eriophyes padi, very common on leaves of wild cherry in Kingston, Washington County, and in Johnston, Providence County. (Mathewson, Kerr). PENNSYLVANIA - V. quadripedes heavy on some maples in Crawford and Fayette Counties. (Adams, Udine). Galls of an unspecified species severe on buds on one side of an ash tree in Fayette County (May 13), and a pocket-gall forming species heavy on leaves of butternut in Washington County (May 20). (Udine). NORTH CAROLINA - E. padi probable species causing galls on wild black cherry in Buncombe County. (Baker, Mount). OHIO - An unspecified species ranged moderate to heavy on hemlock near Oroville, Wayne County. Needles have rusty and bleached appearance. (Reigelman, Walker). WISCONSIN - Galls formed by unspecified species deformed leaves of Prunus spp. in Dane County. (Wis. Ins. Sur.). WYOMING - New galls being formed on cottonwood trees at Laramie, Albany County, by what is probably Aceria parapopuli. Infestations ranged light to extremely heavy. (Fronk, Marks). CALIFORNIA - Adults of Aceria camelliae heavy on camellia buds locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Pupae dug in nursery at North Smithfield, Providence County. Single adult collected in Lincoln, Providence County; unusually early for adults. (Veilleux, Mathewson). INDIANA - Pupation 87.5 percent complete in Lake County (northwest) on May 20. (Schuder).

A NOCTUID MOTH (Xanthopastis timais) - SOUTH CAROLINA - Larvae damaging amaryllis in Bamburg, Bamberg County. (Nettles et al., May 19). ARKANSAS - Collected from jonquil foliage in Union County (south central). (Ark. Ins. Sur.).

A SEAGRAPE BORER (Hexeris enhydris) - FLORIDA - Moderate on stem of Coccoloba uvifera at Merritt Island, Brevard County, May 12. (Levan).

APHIDS - DELAWARE - Aphis spiraecola very common on new growth of spirea in areas of New Castle County. (Burbutis). NORTH DAKOTA - Unspecified species active on foliage of crab apple, elm and wild cherry in Fargo area, Cass County. (Frye). OKLAHOMA - Several species continue to infest ornamental plants throughout State. (Okla. Coop. Sur.). UTAH - Anuraphis viburnicola curling leaves at Providence, Cache County, and a North Ogden, Weber County. (Hanson, Knowlton). Periphyllus negundinis becoming numerous in Ogden and Huntsville areas of Weber County, and Macrosiphum euphorbiae infesting roses at Ogden. (Knowlton). ARIZONA - Aphis nerii heavy on oleanders in Yuma area of Yuma County. Lachnus salignus infesting willows in Glendale area of Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Lachnus salignus adults heavy on willows in Millbrae, San Mateo County. Anuraphis tulipae and Macrosiphum rosae nymphs and adults heavy on iris in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

PSYLLIDS - RHODE ISLAND - Nymphs of undetermined species very common on foliage of swamp maple in East Greenwich, Kent County; leaves cupped with marginal necrosis. (Mathewson). NEW JERSEY - Psylla buxi active on boxwood. (Ins.-Dis. Newsltr.). FLORIDA - Trioza magnoliae severe on leaves of Persea borbonia (redbay) at Gainesville, Alachua County, (May 21), and at Wilma, Liberty County, (May 14). (Mead). COLORADO - Pachypsylla celtidismamma populations higher than in 1963; mating and egg deposition underway. Pachypsylla celtidisgemma nymphs in fourth stage. (Thatcher).

COCCIDS - PENNSYLVANIA - Aspidiotus juglansregiae damaging 10-foot high Ilex opaca in Feasterville, Bucks County, May 9; immatures half developed. (Simons). Chionaspis corni hatched on dogwood about May 3-4 in Centre County; now beginning to settle. (Udine, May 11). VIRGINIA - Chrysomphalis tenebricosus very severe on silver maples at a location in Hopewell, Prince George County; killing twigs and rather large branches. Overwintering adults present. Pest occurs more or less generally on maples in area. (Willey, May 12). NORTH CAROLINA - Lecanium sp. heavy on oak at a location in Duplin County; crawlers emerging. (Garris, Mount). FLORIDA - Lepidosaphes dentata infested leaves of Viburnum pubescens at Gainesville, Alachua County, November 19, 1963. This determined as a new host record in March 1964 by Erdman West, from material submitted at that time. (Graham, Fla. Coop. Sur.). Pinnaspis aspidistrae severe on leaves of Rhapis excelsa at Opa Locka, Dade County, May 13. (Hickman, Brown). Ischnaspis longirostris severe and general on leaves of Monstera deliciosa and moderate on Chamaedorea elegans at Miami, Dade County. (Knowles, MacFarlin; May 14, 12). Diaspis boisduvalii moderate to severe on orchid at Titusville, Brevard County. (Levan, May 11). TEXAS - Coccus hesperidum light locally on various ornamentals in Denton County; causing concern to residents. Eggs hatched about mid-May. (Turney). NEVADA - Gossyparia spuria crawlers active in Lovelock and Oreana, Pershing County. (Ferraro, Martinelli). CALIFORNIA - Aspidiotus britannicus medium on boxwood nursery stock in nursery at Auburn, Placer County. (Cal. Coop. Rpt.).

GREENHOUSE ORTHEZIA (Orthezia insignis) - FLORIDA - General and moderate on stems and leaves of Viola sp. at Miami, Dade County, May 14. (Knowles).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - SOUTH CAROLINA - Most cassena and yaupon leaves affected have now fallen; emergence apparently complete. Sprays to protect for next season should be applied now. (Nettles et al.). PENNSYLVANIA - Pupae in Ilex opaca at Manadahill, Dauphin County, on May 13 probably this species. (Simons).

SPIDER MITES - WYOMING - Light infestations of Tetranychus spp. noted on juniper and spruce at Laramie, Albany County. (Fronk, Marks). NORTH DAKOTA - Tetranychus telarius active on spruce, phlox and other ornamentals. (Frye). IOWA - Spider mite numbers increasing on evergreens. (Iowa Ins. Inf., May 18). NEW YORK - Oligonychus ilicis eggs hatching for over 2 weeks; nymphal development rapid. (N.Y. Wkly. Rpt., May 18). FLORIDA - Oligonychus perditus general on stems and leaves of Thuja sp. at Eagle Lake, Polk County, May 6. (Norton). Schizotetranychus asparagi moderate on leaves of Asparagus plumosus at De Land, Volusia County, May 6. (Roberts).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Troublesome at Clearfield, Davis County, and at Richmond, Cache County. (Davis, Knowlton). Troublesome in Willard-Corinne area of Box Elder County and causing some annoyance at Mendon and from Logan to Trenton in Cache County. (Knowlton). NORTH DAKOTA - Becoming bothersome to man in southeast; Aedes spencerii dominant species. (Noetzel). MINNESOTA - Total of 1,552 larval samples taken in Metropolitan Mosquito Control District during week ending May 16; Aedes vexans present in 60 percent of samples; Aedes spp., probably vexans, in 24 percent; Culiseta inornata in 33 percent; and Aedes cinereus in 5 percent. Total of 20 species determined. Sixteen light traps

now in operation; during week ending May 16, total of 231 females taken, of which 131 were Culiseta inornata, 31 Culex restuans, 30 Culex spp., 8 Aedes vexans and 3 A. dorsalis. First significant emergence of A. vexans occurred May 17. St. Croix, Minnesota and Mississippi Rivers crested during weekend of May 17; last hatch resulting from high water will emerge about May 24. (Minn. Ins. Rpt.). MICHIGAN - Adults of unspecified species recently annoying near low-lying swampy areas in several Lower Peninsula counties; blacklight trap catches have increased. (Newman, Davids, Siefert). ILLINOIS - Unspecified species reported abundant in several areas of State. (Ill. Ins. Rpt.). RHODE ISLAND - Complaints concerning unspecified species increasing statewide. (Mathewson, King, Veilleux). FLORIDA - Following species taken in 10-minute interval (7:05-7:15 p.m.) biting man on evening of May 17 at Gainesville, Alachua County: Psorophora ferox, P. howardi, P. ciliata, Aedes canadensis, A. infirmatus, A. vexans and A. atlanticus/tormentor. (Mead).

FACE FLY (Musca autumnalis) - WISCONSIN - Reportedly numerous in Rock County. (Wis. Ins. Sur.). ILLINOIS - Varied 0-2 per face in Piatt County. (Ill. Ins. Rpt.). INDIANA - Adults averaged 6 per face on cattle in Greene County, southwest. Averaged less than 1 per face on cattle in Newton and Lake Counties, northwest. (Bram). KANSAS - Occasional specimens noted on cattle in northeast and east central areas. (Peters).

HOUSE FLY (Musca domestica) - OKLAHOMA - Populations increased considerably, with up to 7-10 per Scudder grid in Stillwater area, Payne County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Continues low, with fewer than 2 per head on animals in Stillwater area, Payne County. (Okla. Coop. Sur.). WISCONSIN - Few appearing in La Crosse County. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Populations increased in localized areas; counts per head averaged 1,000 on yearling steers, 800 on mature cows and up to 3,000 on bulls. (Okla. Coop. Sur.). KANSAS - Ranged from 25 to over 100 per animal on cattle in northeast and east central areas. (Peters). ILLINOIS - Counts per animal ranged 25-50 in Piatt County and 35-200 in Hancock County. (Ill. Ins. Rpt.). INDIANA -Adults ranged 100-150 per animal on cattle in Greene County (southwest), and 10-100 per animal on cattle in Newton and Lake Counties (northwest). (Bram).

TABANIDS - WISCONSIN - Unspecified deer flies annoying in Green County. (Wis. Ins. Sur.). GEORGIA - An unspecified deer fly heavy at 4-H Club center in Putnam County. (Beckham). FLORIDA - Diachlorus ferrugatus biting man at Gainesville, Alachua County. (Mead, Hetrick).

BLACK FLIES - VERMONT - Populations annoying; expected to continue so next few weeks. (MacCollom, May 19). MICHIGAN - Annoying populations reported in Presque Isle, Genesee and Ottawa Counties. (Sieting, Sharp).

BITING MIDGES (Culicoides spp.) - DELAWARE - Very abundant and annoying in an area of eastern Kent County. (Burbutis).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Populations continue high in Stillwater area, Payne County. (Okla. Coop. Sur.). NEBRASKA - Continues to be reported as bothersome around residences and to pets and children in Lancaster County. (Bergman). NORTH DAKOTA - Continues to be reported infesting pets. (Frye). WISCONSIN - Unusually high populations persisting in many northern counties. Control efforts and particularly repellents may be warranted in wooded areas. (Wis. Ins. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - UTAH - Present on humans in brushy areas near Huntsville, Weber County. (Knowlton).

LONE STAR TICK (Amblyomma americanum) - FLORIDA - Attaching to man as opportunity affords at Torreya State Park, Liberty County, May 13. (Mead).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

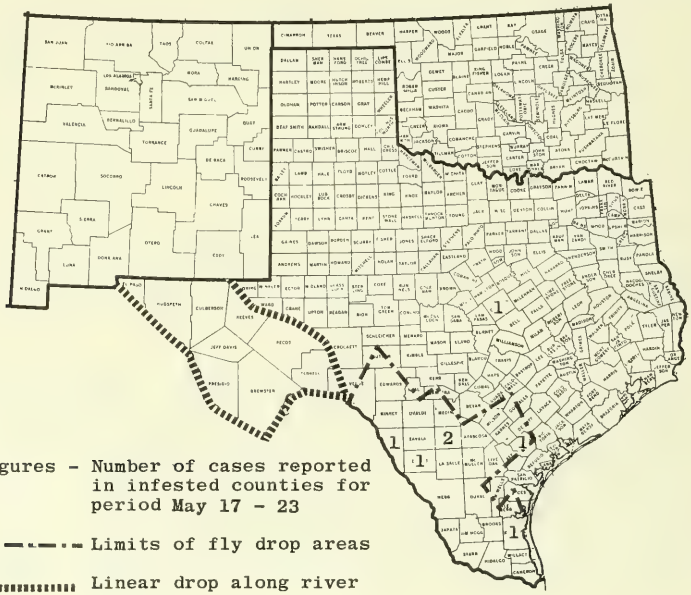
During period May 17-23, a total of 7 screw-worm cases was reported from TEXAS. First screw-worm cases of this year were reported from Coryell, Dimmit and Frio Counties. Other counties reporting screw-worm cases were Kenedy (1), Goliad (1) and Maverick (1). The Republic of Mexico reported 36 screw-worm cases from the States of Sonora (18), Chihuahua (1), Coahuila (1), Nuevo Leon (2), Tamaulipas (12) and San Luis Potosi (2). A total of 94,414,050 sterile screw-worm flies was released: 31,540,250 in Texas, 492,000 in New Mexico and 62,381,800 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963:

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,694	7,918	139	1,402	1,318:1,000	5,647:1,000
1963	127	1,017	268	3,025	473:1,000	336:1,000
1964	7	64	211	3,061	33:1,000	21:1,000

* The number of cases not screw-worm is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in numbers of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 17 - 23

Limits of fly drop areas

Linear drop along river valleys

HOUSEHOLD AND STRUCTURAL INSECTS

LARDER BEETLE (Dermestes lardarius) - INDIANA - Unusually heavy numbers reported throughout State in homes. (Lehker).

BLACK CARPET BEETLE (Attagenus piceus) - MARYLAND - Adults and larvae present in homes in Carrollton, Prince Georges County, and Baltimore. (U. Md., Ent. Dept.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - PENNSYLVANIA - Infested flour in home in Lancaster County. (Gesell). VIRGINIA - Adults causing nuisance in home in Spotsylvania County. (Tarpley, Kash).

RICE WEEVIL (Sitophilus oryzae) - PENNSYLVANIA - Infested new home in Westmoreland County. (Udine).

MOTH FLIES - TEXAS - Heavy infestation in home in Hamilton County. (Deer). MARYLAND - Adults of Telmatoscopus albipunctatus appeared in numbers out of drains in homes in Rockville, Montgomery County, and at Baltimore. (U. Md., Ent. Dept.).

ORIENTAL COCKROACH (Blatta orientalis) - MARYLAND - Infesting homes at Baltimore and at Silver Spring, Montgomery County. (U. Md., Ent. Dept.). PENNSYLVANIA - Numerous in basement and attached garage at home in Greene County. (Udine). CALIFORNIA - Heavy infestation in building in Volta, Merced County. (Cal. Coop. Rpt.).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms appeared in homes in Montgomery and Prince Geroges Counties. (U. Md., Ent. Dept.).

FIRE ANT (Solenopsis geminata) - ARIZONA - Troublesome in homes in Yuma area, Yuma County. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - Continues plaguing many homeowners; controls recommended. (Savos, May 23). NEW JERSEY - Continues troublesome household pest. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Reported over home and walks in Sampson County. (Heath, Robertson). IOWA - Continues annoying. (Iowa. Ins. Inf., May 13). UTAH - Entering homes at Ogden and Huntsville areas of Weber County. (Knowlton).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MICHIGAN - Winged adults emerging in southern area. (Janes). OHIO - R. flavipes activity high this season on military bases. Severely damaged 63,000 square-foot building at Fairborn, Greene County, southeast; loss estimated at $40,000. (Adams). NEW JERSEY - R. flavipes swarmers continue to provide bulk of household pest problems. (Ins.-Dis. Newsltr.). RHODE ISLAND - R. flavipes alates collected in East Greenwich, Kent County, and in Cumberland, Providence County; swarming generally subsided. (Mathewson).

A POWDER-POST BEETLE (Lyctus cavicollis) - CALIFORNIA - Heavy infestation in wood cabinets in home in Oakland, Alameda County. (Cal. Coop. Rpt.)

CARPENTER BEE (Xylocopa virginica) - RHODE ISLAND - Heavy in rustic house in Hope Valley, Washington County. (Mathewson). MARYLAND - Adults active around porches of homes in Silver Spring, Montgomery County, and at Baltimore. (U.Md., Ent. Dept.). SOUTH CAROLINA - First report of season noted in Clemson area; damaging woodwork in home May 16. (Nettles).

CARPENTER ANTS (Camponotus spp.) - CONNECTICUT - Continue appearing in large numbers; controls recommended. (Savos, May 23). IDAHO - C. herculeanus emerging winged forms moderately abundant during past week in areas around Moscow and Nez Perce. (Manis).

A XIPHYDRIID WOOD BORER - RHODE ISLAND - Adults in home in Providence, Providence County, probably associated with fireplace logs. (Buonaiuto, Mathewson).

BENEFICIAL INSECTS

LADY BEETLES - CONNECTICUT - Eggs hatched; larvae active. (Savos). NEW YORK - Anatis quindecimpunctata, Chilocorus stigma and Coccinella transversoguttata noted on Scotch pines infested with pine needle scale (Phenacaspis pinifoliae) at Martville, Cayuga County. (N.Y. Wkly. Rpt., May 18). ALABAMA - Brachyacantha ursina recently observed as very heavy and apparently feeding on aphids on pecan tree in Barbour County. (McQueen). ARKANSAS - Adults & larvae mostly Hippodamia convergens, numerous in small grain and alfalfa in northwest. (Ark. Ins. Sur.). INDIANA - Adults of Coleomegilla maculata ranged 1-3 per 10 sweeps on alfalfa in Greene County (southwest) and 0-2 per 10 sweeps on same crop in Newton, Porter and La Porte Counties (northwest). H. convergens adults ranged 1-3 per 10 sweeps on alfalfa and red clover in Greene County. (Bram). IOWA - Unspecified species averaged 1 per 10 sweeps in central area. (Iowa Ins. Inf., May 18). WISCONSIN - Larvae and adults of unspecified species numerous in few alfalfa and grain fields. Larvae averaged approximately 3 per sweep in 1 field of alfalfa being observed in Brodhead area, Green County. H. convergens adults averaged approximately 4 per 10 sweeps in more heavily infested field of oats examined for greenbug (Schizaphis graminum) in Trempealeau area, Trempealeau County. (Wis. Ins. Sur.). NORTH DAKOTA - Trace numbers of H. convergens and Adalia bipunctata observed in southeast area alfalfa. (Frye). NEBRASKA - Hippodamia sp. adults averaged 30 per 100 sweeps on alfalfa in Saunders County. (Calkins, Jarvis). Adults ranged 8-20 per 10 sweeps in legumes and oats in Cedar and Knox Counties. (Bergman). KANSAS - Several species continue numerous in eastern area of State. (Peters). WYOMING - Adults of unspecified species averaged 20 per 100 sweeps in alfalfa and small grain in Fremont County. (Marks). UTAH - Unspecified species increasing in numbers in northern area alfalfa. (Knowlton). NEVADA - Various species varied 1-4 per sweep in southern Washoe County alfalfa fields. (Cooney). WASHINGTON - Several species, mostly H. convergens and C. transversoguttata, ranged 2-26 per 10 sweeps in alfalfa at Yakima and vicinity, Yakima County, where pea aphid (Acyrthosiphon pisum) is damaging alfalfa. (Featherstone, Halfhill).

LACEWINGS - INDIANA - Chrysopa oculata adults averaged 2 per 10 sweeps in alfalfa and red clover in Greene County (southwest), and less than 1 per 10 sweeps on alfalfa in northwest section of State. C. carnea adults reached maximum numbers of 2 per 100 sweeps on alfalfa in northwest and southwest sections. (Bram). ARKANSAS - Chrysopa spp. averaged 16 per 100 sweeps in one field of alfalfa in Washington County. (Ark. Ins. Sur.). KANSAS - Unspecified species remain plentiful in eastern area. (Peters). NEBRASKA - Chrysopa sp. averaged 2 adults and 2 larvae per 100 sweeps on alfalfa in Saunders County. (Jarvis, Calkins). UTAH - Adults of unspecified species increasing in northern area alfalfa. (Knowlton).

DAMSEL BUGS - IOWA - Averaged 1 per 10 sweeps in east central area. (Iowa Ins. Inf., May 18). KANSAS - Continue to be plentiful in eastern part of State. (Peters). NEBRASKA - Nabis sp. averaged 26 per 10 sweeps on alfalfa in Saunders County. (Jarvis, Calkins). UTAH - Unspecified species increasingly numerous in northern area alfalfa. (Knowlton).

FLOWER BUGS (Orius spp.) - NEBRASKA - Averaged 2 per 10 sweeps on Saunders County alfalfa. (Jarvis, Calkins).

CHINESE MANTIS (Tenodera aridifolia sinensis) - NORTH CAROLINA - Egg masses noted at location in Duplin County. (Wray).

SYRPHID FLIES - UTAH - Larval numbers increasing in alfalfa in northern portion of State. (Knowlton).

HONEY BEE (Apis mellifera) - WISCONSIN - Colonies overwintered well and broods being produced. Colonies building up somewhat faster in southern areas than in northern areas; however, conditions excellent in these northern areas. (Wis. Ins. Sur.). UTAH - Mortality rather heavy in some Cache County yards. (Nye, Nielsen, Knowlton).

A LEAFCUTTING BEE (Osmia sp.) - IDAHO - Adults emerging from alfalfa leafcutting-bee straws and boards in Twin Falls and Canyon Counties. (Gibson, Waters).

AN ICHNEUMON (Bathyplectes curculionis) - COLORADO - Adults and parasitized larvae of alfalfa weevil (Hypera postica) reported from eastern and western slope counties. (Bulla, Jenkins).

MISCELLANEOUS INSECTS

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Taken at several locations in Miami, Dade County. (Brown, May 12-13). Infested leaves of following new hosts: Turks-cap (Malvaviscus sp.), pigeonberry (Duranta repens), floss silktree (Chorisia speciosa) and Brazilian peppertree (Schinus terebinthifolia). (Fla. Coop. Sur.). Moderate to severe in same area on leaves of Delonix regia, Citrus sinensis, Hibiscus rosa-sinensis and Kigelia pinnata. (Brown, May 13).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - First adult of season trapped May 13 at New Hanover County Airport. (Rosier). VIRGINIA - First adult of season observed on roses May 19 in Norfolk. (Sims).

FALSE POTATO BEETLE (Leptinotarsa juncta) - ALABAMA - Adults feeding on weeds in rye locally in Coffee County. (Stephenson).

A WEEVIL (Trachyphloeus bifoveolatus) - WASHINGTON - Numerous on foliage and invading buildings between Tacoma and Seattle, King County. (Baker, Howell).

BLACK CUTWORM (Agrotis ipsilon) - INDIANA - Late instars (up to 1.5-inch long) active in sod in Clay County, west central. (Gould).

WHITE-LINED SPHINX (Celerio lineata) - UTAH - Numerous in blacklight traps at Logan, Cache County. (Davis).

A MARCH FLY (Scatopse sp.) - ARIZONA - Heavy population found in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

INTERCEPTIONS

HUMAN BOT FLY (Dermatobia hominis) - WISCONSIN - Second-stage larva taken from dog in Door County. Dog had been in South America for a period of time. Tentative determination by H. J. Griffiths. (Wis. Ins. Sur.).

LIGHT TRAP COLLECTIONS

	Temperature F	Precipitation	Type of trap *	Agrotis ypsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (grass cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feltia ducens (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commiralis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Perdicrom saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tobacco hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																							
Hope 5/7-20				15					0	83					0					26			
Fayetteville 5/7-20				1					0	5					1					0			
CALIFORNIA																							
Davis 5/16-22			BL	3				9												30			Misc.
FLORIDA																							
Gainesville 5/18			BL					8		1					1	4		1					
GEORGIA																							
Tifton 5/14-20									0	2							1	2					
ILLINOIS (County)																							
Champaign 5/15-21	64-87	0.10"		12									spp.		41					52			
KANSAS																							
Garden City 5/13,15,18				6		2111		38		51			226		12	13				125			
Hays 5/14,16,19				2		119		16		1			182		5					34			
Manhattan #1 5/15-22				7		19		1		4			4		9	1				25			
Manhattan #2 5/13, 16-18, 20-21				185		640		100		108			248		160	216				2268			
Mound Valley 5/14,16,19				6		2		4		4			29		12	2				48			
Wathena 5/14-18				9		8		4					10		2	1				12			
MARYLAND (Counties)																							
Queen Annes 5/17-19				6										76	2					5			
Worcester 5/15-21				49										51	13		1 sp.			98			
MISSISSIPPI																							
Stoneville 5/16-22	54-95	trace	MV	13			1	4	4	4					21	13		11		11			
Stoneville 5/16-22	54-95	trace	BL	18			22	1	1	5					13	23		14		14			
MISSOURI																							
Columbia 5/8-14				3										0	2	0	10			0			
Portageville 5/15-22				2						1				2	3	13	0			7			
NEBRASKA																							
North Platte 5/7-13				44		1092		14					spp.		408					1453			
Scotts Bluff Expt. Sta. 5/6-13						483		32					7		35					7			
NORTH DAKOTA																							
Fargo 5/15-22				5																183			
TEXAS																							
Waco 5/16-22				38			4	82		123					475	206				502	31	36	
Brownsville 5/14-21			5 BL	4			90	1317		1473	352		46033		4	126	35	86				769	
WISCONSIN																							
Platteville 5/8-19			BL	20											4					85			
Mazomanie 5/13-19			BL	4											2					8			
Madison 5/14-20	42-86		BL	62											13					198			
Middleton 5/12-20			BL	7											2					26			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet - garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain - small grains; leg. - legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 14 No. 23 June 5, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 June 5, 1964 Number 23

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ARMYWORM reported damaging wheat in east central Kansas, caused some severe head clipping in wheat and barley in central Missouri and averaged 3.5 per foot of row in wheat fields in west, central and east districts of Illinois. Treatments being applied in many areas of southern two-thirds of Illinois. Larval counts in southeast Indiana averaged less than 1 per linear foot of row in wheat; however, vigilance suggested. (pp. 565, 566). BLACK CUTWORM major field crop pest in Iowa; caused economic damage to corn and milo in parts of Hall and Valley Counties, Nebraska; and this species and DINGY CUTWORM causing moderate to heavy damage to bottom land corn in northern one-third of Missouri. (p. 566). EUROPEAN CORN BORER infesting 52 percent of cornstalks in Portageville area of New Madrid County, Missouri. First generation of SUGARCANE BORER caused numerous dead hearts in sugarcane-growing area of Louisiana; activity heavier than any time since 1961. (p. 567).

ALFALFA WEEVIL recorded in Indiana for first time and found in 11 new Ohio counties. Counts of over 2,000 larvae per 100 sweeps obtained in alfalfa in Northampton area of Hampshire County, Massachusetts, and considerable adult activity noted in Wyoming. (pp. 569, 570).

POTATO PSYLLID averaged 54 per 100 sweeps on potato cull piles and on matrimony-vine in panhandle area of Nebraska, and all stages continue high in Weld County and building up in Arkansas Valley of Colorado. (p. 570).

CANKERWORMS remain a problem in North Dakota, and numerous in various localities of Wisconsin, Michigan, New York, Connecticut and New Jersey. (p. 580). The GYPSY MOTH infestation area expanded appreciably in southeastern Massachusetts; up to 100 percent defoliation can be expected in rather large areas if controls not applied. Also prevalent in many areas of Vermont where it is seriously defoliating ornamental trees. FOREST TENT CATERPILLAR infestations general in Sandpoint area of Idaho; severe larval damage occurring. (p. 582). EUROPEAN ELM SCALE expected to kill about 25 percent of American elms in northwest quarter of Saline County, Kansas, due to repeated attacks. EUROPEAN PINE SAWFLY very abundant on Scotch pine in northwest Pennsylvania and heavy infestations reported in Kalamazoo, Genesee, Livingston and Ingham Counties, Michigan. (p. 583). High buildup of APHIDS reported on number of ornamental trees in several States. (p. 584).

DETECTION

ALFALFA WEEVIL (*Hypera postica*) recorded in Indiana for first time. Also recorded in numerous counties for the first time including 11 in Ohio, Richland and Effingham in Illinois, Custer in Nebraska and Gray in Kansas. (pp. 569, 570). Other new county records of significance were as follows: A SNAIL (*Rumina decollata*) in Pinal County, Arizona (p. 569); a WEEVIL (*Tychius stephensi*) in Marshall County, Illinois (p. 570); a BROWN SPIDER (*Loxosceles reclusa*) in Wayne County, Illinois (p. 588); IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) in Austin County, Texas (p. 590); and WHITE-FRINGED BEETLES (*Graphognathus* spp.) in Quitman County, Mississippi (p. 590).

ADDITIONAL NOTES

See page 590.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 587).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Alfalfa, Corn, Beans, Sugar Beets, Potatoes, Tomatoes, Lettuce, Cabbage, Onions, Peaches, Apples and Pears in Colorado in 1963. (pp. 593-598).

Reports in this issue are for week ending May 29 unless otherwise indicated.

WEATHER OF THE WEEK ENDING JUNE 1

Rather unusual cooling, and cloudy, showery weather affected most areas last week as a late season cold air mass overspread the Nation.

TEMPERATURE: The record setting heat of the previous week from the Rockies eastward gave way to record low temperatures during the week. Temperatures averaged below normal over most of the country and above normal averages were limited to coastal and border areas of the East, South, and Northwest. The cold air mass moved steadily southeastward from the northern Plains States on the 26th to the Gulf and northern Florida by the 30th. Daily maxima at Dodge City, Kansas, dropped from 98° on the 26th to 62° on the 27th, and to only 53° by the 30th. Freezing minima of the 31st set new late season marks of 27° at Bismarck, North Dakota, and 31° at both Huron, South Dakota, and North Platte, Nebraska.

PRECIPITATION: Frequent shower periods affected much of the Nation. Very timely rains occurred over the dry areas of New Mexico, High Plains of Texas, and northward into Colorado and western Kansas. However, sections of the East had their 4th dry week: Coastal States from Massachusetts to Maryland, and interior areas of Georgia and South Carolina. Much of the Far West received moderate to locally heavy rainfall as recurring periods of precipitation occurred from the northern and central Rockies into northern California.

The cool, dry air colliding with warm, moist Gulf air brought cloudy skies and triggered shower activity eastward and southward from the central Great Plains. Local flooding over the lower Arkansas Valley of Colorado was a result of rains to over 6 inches. Sullivan, Missouri, had a downpour of 5.60 inches on the 28th. In the western Texas Panhandle, the showers brought the first significant precipitation since February. Local falls over 5 inches were measured near Houston and at Bridgeport and Wichita Falls, Texas. Scattered hail and severe storms occurred in most areas of shower activity. A tornado at Lumberton, North Carolina, damaged buildings on the 28th. Golf ball size hail hit the Ft. Worth, Texas, area on the 29th. Tornadoes and hail also struck Del Rio, Texas, and Woodville, Florida, that day. On the 30th, crop damage was a result of hail and winds near Uvalde and Crystal City, Texas.

MONTHLY WEATHER: May continued the temperature pattern of April with mostly above normal temperature east of the Rockies and below normal to the west. The rainfall pattern was variable and spotty with monthly amounts mostly in the normal range. Areas of deficiency seem to be more numerous than those of excess. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEW MEXICO - Early instars averaged 5-25 per 25 sweeps in alfalfa in Albuquerque area, Bernalillo County. Several fields in Bloomfield-Aztec area, San Juan County, had as many as 2-8 per sweep. (N.M. Coop. Rpt.). UTAH - Grasshoppers hatching in Sandy-Granite area of Salt Lake County; spottedly numerous. Fewer noted elsewhere and in Davis, Weber and Box Elder Counties. Mostly first and second instars with some third instar. Aulocara elliotti and Melanoplus spp. hatched in Millville area of Cache County and at Logan. (Knowlton). NEVADA - Scattered, spotted hatch of primarily Aulocara elliotti occurring in western Humboldt County. Second and third instars present. (Del Curto). Complaints received from north and northwest Reno area, Washoe County. (Gardella). CALIFORNIA - Medium nymphal and adult populations of Oedaleonotus enigma present on range grass in Coalinga area, Fresno County, and heavy populations in Avenal area of Kings County. Fifty thousand acres of grasslands infested with 10-100 Melanoplus devastator per square yard. Treatment applied to 44,000 acres so far with a 99.9 percent kill using an extremely low dosage airplane spray to protect 10-15 million dollar crops adjacent to infestation. Additional treatment to be completed as weather permits in Wheeler Ridge area, Kern County. This is a cooperative program similar to one used in 1954. In Sequoia National Forest in Mill Flat Creek area, some 320 acres heavily infested with 300-400 M. devastator per square yard (mostly first and second instars)) This is an area where 1-6 year-old pine tree replants seriously damaged in forest plantation in 1963. Area will be treated second week in June. Some 1,500 acres of Indian reservations severely infested in Cahuilla reservation, Riverside County, by Camnula pellucida. Treatment now in progress in this area. In Morango reservation, Riverside County, approximately 200 acres will receive bait treatment in egg beds where heavy populations occur. In Los Coyates area of San Diego County, 130 acres show several hundred grasshopper nymphs per square yard. This area will be bait treated. (Thompson, Harmon). IDAHO - Areas in Indian Cove section southwest of Hammett show nymphal grasshopper populations up to 50+ per square yard. Majority first and second instars, with occasional third instar noted. No attempt made to establish acreages involved at this time. (PPC). NORTH DAKOTA - Nymphs ranged 1-30 per square yard in field margins in Oliver, Mercer, Dunn, McKenzie and Stark Counties; development first through third instars, with most first and second instars Dominant species Melanoplus bivittatus, M. sanguinipes, M. packardii and M. differentialis. Few first instars of M. femurrubrum present. Survey of rangeland in McKenzie and Billings Counties showed infestations of less than 1 to 3 nymphs per square yard; first instars of Ageneotettix deorum dominant. Camnula pellucida observed hatching in few small, scattered areas; ranged up to 30 per square yard. (Brandvik). MINNESOTA - Light hatch of Melanoplus spp. in Chippewa and Kandiyohi Counties. (Minn. Ins. Rpt.). SOUTH DAKOTA - Hatch still very high. Surveys made in north central and southwestern counties, with populations (5 per square yard) being found in Jackson County. All "hoppers" in first instar and M. bivittatus and M. sanguinipes species present. (Burge, Zimmerman). NEBRASKA - M. bivittatus and M. sanguinipes averaged 30 per square yard in Cherry and Dawes Counties. Dominant rangeland species hatching in Pine Ridge area (northwest) Ageneotettix deorum, Amphitornus coloradus and Aulocara elliotti. (Warnke). M. bivittatus less than 1 per square yard in fence rows and legumes in Hall, Howard, Merrick and Nance Counties. (Bergman). MISSOURI - Early instars of several species found in southeast. (Houser, Thomas, Wood). MISSISSIPPI - One grasshopper outbreak in southern area required control. (Bennett, Young). ALABAMA - M. femurrubrum and M. differentialis rather heavy, 6 per square yard, in annual lespedeza locally in Randolph County. Few of these species widespread throughout central and southern areas. (Barwood et al.).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Outbreaks occurred in lower Northhampton County; damaging to seedling corn locally in Lancaster County; present in several areas of Rappahannock County; and infestations detected in several sections of Charles City and New Kent Counties. Controls justified in some instances in latter two counties. (Hofmaster, McSwain, Lyne, Settle). INDIANA - Second and third instars averaged less than 1 per linear foot of row in wheat in Clark County, southeast. Surveys of 13 wheat fields in Wayne, Franklin, Ripley,

Washington, Jackson and Bartholomew Counties, southeast, negative. Populations have not reached anticipated economic levels; however, vigilance must be maintained until critical period of development has passed. (Bram). ILLINOIS - Larvae vary 0-26, average 3.5, per foot of row in wheat fields in west, central and east districts; treatments being applied in many areas in southern two-thirds of State. (Ill. Ins. Rpt.). MISSOURI - Counts in small grains and pasture grasses ranged 1-40 per square foot in central area. Some severe head clipping in barley and wheat. (Houser, Thomas, Wood). KANSAS - Reported damaging wheat in east central area; larvae generally 4-8 per foot of row, with high counts of 50-70 larvae per foot reported from Linn County. Few fields in Linn County completely destroyed. All stages of larvae reported. Some migration of larvae from brome into corn and sorghum reported. (Gates). In northwest and north central, averaged less than one per foot of row. (Peters). LOUISIANA - Light on pasture grasses in Caddo Parish; medium to heavy on corn in Jefferson Davis Parish. (Cancienne et al., May 25). GEORGIA - Heavy infestation on oats in Dooly County. Light on oats in Schley County. (Fulford, Fletcher).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Counts in wheat in northwest and north central areas averaged less than 1 per foot of row. Reported as high as 10-15 per square yard in southeast. (Peters). Counts in south central area as high as 1 per square yard. Some larval damage noted. Larvae now full grown. Also reported from east central area. (Gates).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Heavy on corn in Jefferson Davis Parish. (Cancienne et al., May 25). ALABAMA - Destroyed 40-acre field of corn in Mobile County. (Vickery).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - Few larvae feeding on corn in Houston County, but not causing serious damage. (Kimbrough, West). MISSISSIPPI - Found in young plantings of corn, cotton, soybeans and other crops. (Bennett, Young).

BLACK CUTWORM (Agrotis ipsilon) - INDIANA - Destroying 10-15 percent of corn seedlings locally in Tippecanoe County. (Gould). ILLINOIS - This species and unidentified Agrotis cut 0-5.5 (average 1.3) percent of corn plants in fields examined in central and east districts. None found in northeast fields checked. (Ill. Ins. Rpt.). IOWA - This species major field crop pest over State. Damaging young corn plants in Lee, Decatur, O'Brien, Fayette and Mills Counties. (Iowa Ins. Inf., May 25). NEBRASKA - Larvae causing economic damage to corn and milo in parts of Hall and Valley Counties. Some damaged fields replanted. (Bergman). MISSOURI - This species and Feltia subgothica causing moderate to heavy damage to bottom land corn in northern one-third of State. Some fields being replanted. Upland corn in this area receiving moderate damage in some fields. (Houser, Thomas, Wood).

GLASSY CUTWORM (Crymodes devastator) - OHIO - Fifty percent feeding damage observed on 11 acres of field corn near Homesville, Holmes County, northeast section. Sod had been plowed under and replanting of corn necessary. (Rings).

CUTWORMS (undetermined) - MARYLAND - Caused light to heavy injury to seedling corn in sections of Montgomery, Carroll, Harford and Worcester Counties. (U. Md., Ent. Dept.). MINNESOTA - Damaged corn in Freeborn, Yellow Medicine and Lac qui Parle Counties. (Minn. Ins. Rpt.). SOUTH DAKOTA - Agrotis sp. collected feeding on underground portions of corn in Turner County; replanting necessary on approximately 80 acres. (Hintz, Nearman).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - Egg masses observed May 25 in Burlington County. (Ins.-Dis. Newsltr.). NEW YORK - Pupation complete by May 22 in Hudson Valley. (N.Y. Wkly. Rpt.). OHIO - Moths began to emerge from cages near Wooster, Wayne County, northeast area on May 28. (Barry). WISCONSIN - Adults caught in Arlington area on May 25; present in oat fields in Lafayette and Green Counties on May 26. (Wis. Ins. Sur.). MINNESOTA - First

pupation observed in central and west central districts. Corn just coming up; apparently development of borer ahead of corn. (Minn. Ins. Rpt.). IOWA - Pupation 54 percent and emergence 2 percent at Ankeny on May 21; first moth trapped on May 19 at Ankeny and 6 caught on May 22. (Iowa Ins. Inf., Sparks; May 25). NEBRASKA - Pupation approximately 35-45 percent completed in Hall County. Very few fields of corn more than 2 inches tall. (Bergman). MISSOURI - Egg masses still being found on corn in Portageville area, New Madrid County. Early planted corn (4 feet high) 53-83 percent infested. Later planted corn (2 feet high) 33-37 percent infested. Infested stalks averaged 52 percent. Larvae in second and third stages. (Keaster). ARKANSAS - First eggs of season in northwest found May 29 in Washington County at rate of 12 masses per 100 plants. Extended height of corn about 3 feet. (Ark. Ins. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - LOUISIANA - First-generation larvae collected on corn in Caddo and Bossier Parishes. (Cancienne et al., May 25). MISSOURI - Emergence of overwintering population 90 percent in bootheel area of southeast. (Keaster).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - First generation activity heavier than any time since 1961; dead hearts numerous in many fields throughout the sugarcane-growing area. (Cancienne et al., May 25).

CORN EARWORM (Heliothis zea) - GEORGIA - Moderate infestation in whorls of corn in Twiggs County. (Roland). ALABAMA - Light to heavy infestations appearing in most field corn in southeast. (Kimbrough, West, Hartzog, et al.). LOUISIANA - Moderate to heavy on clovers and alfalfa in Plaquemines and Rapides Parishes. Damaging young corn in East Baton Rouge Parish. (Cancienne et al., May 25). ARKANSAS - Adults quite active in southwest and south central areas. Moths very active in corn planted as trap crop in tomato-growing area of Bradley County. First eggs of season collected April 15 in Clark County, southwest. (Ark. Ins. Sur.). OKLAHOMA - Becoming common in alfalfa in Tulsa, Muskogee, Sequoyah and Wagoner Counties; larvae as high as 8-10 per 10 sweeps with mostly early stage larvae present. Also feeding on soybean seedlings in Wagoner County. Considerable feeding in tassels of corn in Bixby area, Tulsa County. (Okla. Coop. Sur.). MISSOURI - Larval feeding light in whorls of corn in New Madrid County, southeast. (Keaster).

CORN ROOT WEBWORM (Crambus caliginosellus) - VIRGINIA - Overwintering larvae damaging seedling corn in several fields of corn in Rappahannock County (Tarpley, Lyne) and in Loudoun County (Tarpley, Brown).

SOD WEBWORMS - COLORADO - Adults of Crambus leachellus present in small numbers on lawns in Fort Collins area of Larimer County. (Thatcher). MISSOURI - C. mutabilis at peak of emergence in central area. (Houser, Thomas, Wood). IOWA - Unspecified species showed up in first-year corn following sod in Clarke and O'Brien Counties. (Iowa Ins. Inf., May 25). INDIANA - C. trisectus (first-generation adults) flying in Marion County, central area; heavier than normal. (Schuder). RHODE ISLAND - A webworm, probably Crambus sp., heavy in turf in Kingston, Washington County. (Skogley).

CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - In La Porte and St. Joseph Counties, most larvae full grown and pupated on wheat; first pupa noted on May 25. Present in all stages at present. Peak oviposition on oats apparently on May 28. Hatch in oats varying from 10 to 50 percent. (Wilson). A chalcid parasite (Tetrastichus sp.) of the larvae of cereal leaf beetle, collected near Rome, Italy, during May 1964, was released (50 adults) in St. Joseph County, with more scheduled for release later. An ichneumon (Thersilochus sp.), also a parasite of cereal leaf beetle, is scheduled for release in the general area of infestation in 1965. (Paschke). MICHIGAN - Second treatment under State-Federal suppression program completed May 25. Total of 50,500 acres in Berrien County treated; 24,500 acres treated in area earlier this spring for adults and remaining 26,000 acres treated for first time. A very high percentage of larval kill was evident soon after treatment was applied. However, because of greater

top growth in wheat, penetration harder to obtain than when application made against the adults. (Turney). ILLINOIS - None found in 10 oat and 10 grass fields examined in northeast and east districts. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ALABAMA - Heavy, 5 or more per small plant, in some stands of corn in Keel Mountain area of Madison County. Considerable damage observed. (White).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - SOUTH DAKOTA - Adult collected in field of small grain in Yankton County; first of season. (Hintz, Nearman). NEBRASKA - Adults ranged 2-4 per 10 sweeps on alfalfa and wheat in Hall and Howard Counties. (Bergman).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Adults numerous in some areas of Acadia Parish. (Cancienne et al., May 25).

BILLBUGS - FLORIDA - Sphenophorus inaequalis severely and generally inhabiting centipede lawn at Homeland, Polk County. (Snell, McLeon; May 19). Another weevil, Stethobaris sp., inhabiting same host. (Fla. Coop. Sur.). GEORGIA - Sphenophorus sp. heavy on corn in Jenkins County. (Douglas). MISSOURI - Sphenophorus sp. common in river bottom corn fields in northern one-half of State. (Houser, Thomas, Wood).

ASIATIC GARDEN BEETLE (Maladera castanea) - MARYLAND - Caused serious injury to over 5 acres of young corn near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

A WHITE GRUB (Cyclocephala sp.) - INDIANA - Abundant in sod in Tippecanoe County. (Gould).

CARROT BEETLE (Bothynus gibbosus) - LOUISIANA - Adults damaging young corn locally in Jefferson and Washington Parishes. (Cancienne et al., May 25).

WIREWORMS - NEBRASKA - Causing damage to milo in Fillmore County; replanting necessary. (Bergman). IOWA - Reported in field crops from Wayne, Hancock and Story Counties. (Iowa Ins. Inf., May 25). ILLINOIS - Melanotus spp. and Drasterius sp. damaged 0-4, average 0.75, percent of plants in corn fields examined in central and east districts; none found in northeast area fields checked. (Ill. Ins. Rpt.). INDIANA - Infesting 15 acres of corn seedlings (50 percent loss of stand) in Jasper County, northwest section; species probably Limonius dubitans. (Gould).

GRASS PLANT BUGS - IOWA - Nymphs and adults ranged 1-10 per sweep on heading bluegrass in Ringgold and Union Counties. (Iowa Ins. Inf., May 25). UTAH - A striped species numerous and discoloring wheat, barley and range grasses in West Jordan-Granite area of Salt Lake County. (Knowlton). NEW MEXICO - Labops hesperius controlled on about 2,200 acres of crested wheatgrass; results very good. (N.M. Coop. Rpt.).

MEADOW PLANT BUG (Leptopterna dolabratus) - ILLINOIS - Nymphs varied 0-720, averaged 172, per 100 sweeps in grass fields in northeast district. (Ill. Ins. Rpt.). WISCONSIN - Nymphs very numerous in grasses and appeared in small numbers in grassy alfalfa fields. Adults developing. (Wis. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNEOSTA - Counts per 100 sweeps ranged 5-60 in small grains and alfalfa in central district and 5-200 in west central district. Light in seedling flax in west central district. (Minn. Ins. Rpt.). WISCONSIN - Adults continue to appear in seemingly larger numbers in oats; 1-10 per 50 sweeps in most oat fields in southwestern and western counties. (Wis. Ins. Sur.). NEBRASKA - Ranged 6-30 per 10 sweeps in wheat and alfalfa in Hall County. (Bergman). COLORADO - Low in Prospect Valley, Weld County; 5-10 per 100 sweeps on barley. (Jenkins).

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Adults varied 0-15, averaged 5.2, per foot of row in wheat in central district; none found in northeast district. No eggs or nymphs observed. (Ill. Ins. Rpt.). OKLAHOMA - Medium infestations reported in corn and grain sorghum in Ottawa County, northeast. (Okla. Coop. Sur.).

CHINCH BUGS - LOUISIANA - Increasing on St. Augustine grass in East Baton Rouge Parish. (Cancienne et al., May 25).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MINNESOTA - Quite low generally on small grains in central and west central districts. (Minn. Ins. Rpt.). ILLINOIS - Relatively scarce, 0-80 per 100 sweeps, in wheat and oats in northern one-half of State. (Ill. Ins. Rpt.).

CORN ROOT APHID (Anuraphis maidiradicis) - VIRGINIA - Severely infesting roots of young corn on farm in Smithfield, Isle of Wight County. (Tarpley, Jones).

SAWFLIES (Dolerus spp.) - ILLINOIS - Varied 0-40 per 100 sweeps in wheat in northern one-half of State. (Ill. Ins. Rpt.).

THRIPS - MARYLAND - Undetermined species increasing steadily on more advanced corn in most sections. (U. Md., Ent. Dept.). MISSOURI - Light on soybeans in Ste. Genevieve County, east central area, and Cape Girardeau County, southeast. Light to moderate on 6-inch corn in Cape Girardeau and Scott Counties and causing some silvering. (Houser, Thomas, Wood). ARIZONA - Chirothrips spp. continue light on Bermuda grass. No treatments reported during week. (Ariz. Coop. Sur.).

A BERMUDA GRASS MITE (Aceria neocynodonis) - ARIZONA - Damaging Bermuda grass in yard plantings in Tucson area of Pima County. (Ariz. Coop. Sur.).

A SNAIL (Rumina decollata) - ARIZONA - Working in Bermuda grass in Florence area of Pinal County; first record of pest in Pinal County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - INDIANA - Found in Harrison County, southern section; first record for the State. Two adults (det. by Bram, confirmed by Hansen and Chandler) collected 1 mile south of Palymra on alfalfa May 26. Surveys in Bartholomew, Jackson, Washington, Jefferson, Franklin and Fayette Counties, southeast area, were negative. (Bram). OHIO - Eleven new counties, namely Union, Delaware, Morrow, Knox, Richland, Ashland, Holmes, Wayne, Stark, Mahoning and Portage, were found infested for the first time. (Holdsworth, Miller, Lyon). Adults present in all fields checked in Carroll County, east central area. (Showalter). Fifteen percent loss observed in Tuscarawas County fields. (Cronin). Adults found in Perry County, central section, and extensive damage has occurred in Stockdale area of Pike County, south central area. (Perry, Fladt). ILLINOIS - Collected in two new counties: Richland and Effingham. Parasites of this weevil released in southern area. Neither adults nor larvae observed in east, northeast and central districts. (Ill. Ins. Rpt.). MISSOURI - Not found in any new counties. (Houser, Thomas, Wood). KANSAS - Larvae collected May 22 in alfalfa in Gray County, southwest. Counts light, averaged 5 per 100 sweeps. This is a new county record. (DePew). Larvae ranged 0-114 per 100 sweeps May 18 in Finney County; adults 0-5 per 100 sweeps. (Manglitz, DePew). Two alfalfa fields checked in Cheyenne County, northwest, on May 20. One produced no weevils per 100 sweeps; 150 sweeps in second field produced 2 larvae. (Manglitz). On May 26, counts of 2 larvae per 100 sweeps noted in Cheyenne County, 0-4 larvae per 100 sweeps in Rawlins County and 0 per 100 sweeps in Decatur County. (Peters). NEBRASKA - Larvae per 100 sweeps ranged 2-4 in Custer County and 1-6 in Dundy County, and averaged 13 per 100 sweeps in Keith County and 28 per 50 sweeps in Lincoln County. This was first record for Custer County (Manglitz). WYOMING - Considerable adult activity noted in alfalfa; averaged per 100 sweeps 35 in Washakie County, 42 in Park County and 112 in Sheridan County. Largest adult populations found near Shell, Big Horn County, where

definite resistance to chlorinated hydrocarbons has been established. Adult counts in this area averaged 250 per 100 sweeps. Larval activity noted for first time at Shell where first and second instars averaged 75 per 100 sweeps. (Marks). COLORADO - Larvae building up on alfalfa in Pueblo, Crowley and Otero Counties; 0-60 per 100 sweeps. Heaviest populations in Pueblo County. (Schweissing). NEW MEXICO - Adults and larvae, probably this species, light to heavy and causing considerable damage to alfalfa foliage in Aztec-Farmington-Bloomfield areas of San Juan County; most fields checked infested. (N.M. Coop. Rpt.). UTAH - Adults 10-25 per 100 sweeps in Salt Lake County alfalfa. Some full-grown larvae present and individual plants showing obvious injury. Adults numerous and some larvae present in Cache County alfalfa from Millville to Smithfield. (Haws, Knowlton). RHODE ISLAND - Heavy feeding observed and numerous larvae swept from alfalfa in West Kingston, Washington County. Noted in Riverton, Newport County. (Mathewson, Peabody). MASSACHUSETTS - First pupae observed in Berkshire County on May 25; pupae and newly emerged adults noted in Hampden County on May 27. Counts of over 2,000 larvae per 100 sweeps obtained in fields in Northampton area of Hampshire County; other fields in Hampshire County had over 1,000 larvae per 100 sweeps. In such fields, alfalfa appeared frosted. (Shaw). VERMONT - Larvae causing injury to forage stands in Bennington County. (MacCollom, May 25). NEW YORK - Continues serious threat to first cutting in fields of alfalfa in Ulster County not treated in fall of 1963. (N.Y. Wkly. Rpt., May 25). MARYLAND - Injury to young, second-growth alfalfa by larvae and first-generation adults continuing in all sections. (U. Md., Ent. Dept.). GEORGIA - Larvae averaged one per sweep on untreated field of alfalfa in Franklin County. (Johnson).

CLOVER HEAD WEEVIL (Hypera meles) - LOUISIANA - Light in Avoyelles and St. Landry Parishes. Heavy larval populations still present in clover in Jefferson Davis and Red River Parishes. (Cancienne et al., May 25).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Populations collapsed in southern Grant and Lafayette Counties; larvae could not be found in fields where counts ran as high as 5 per clump first week of May. Disease, noted on few larvae at that time, credited with decline. (Wis. Ins. Sur.). IDAHO - Spotted infestations found in most fields examined. Damage has been minor. However, in some localized spots in fields, damage sufficient to retard plant growth. (Dailey).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IOWA - Damaging sweetclover seedlings in Story County. (Iowa Ins. Inf., May 25).

A WEEVIL (Tychius stephensi) - ILLINOIS - Adults varied 10-20 per 100 sweeps in clover and alfalfa in northeast district; collected in Marshall County, central district, for first time. (Ill. Ins. Rpt.).

PEA APHID (Acyrthosiphon pisum) - RHODE ISLAND - Very large numbers swept from alfalfa in West Kingston, Washington County; many parasitized. (Mathewson). INDIANA - Adults and nymphs ranged 10-17 per sweep on alfalfa in Bartholomew, Jackson, Jefferson, Franklin and Fayette Counties, southeast. Averaged 35 per sweep in Washington and Harrison Counties, southern area. (Bram). ILLINOIS - Very scarce, 0-260 per 100 sweeps, in clover and alfalfa in northern one-half of State. (Ill. Ins. Rpt.). WISCONSIN - Populations continue to decrease in in alfalfa. Average counts ranged 0-45 per sweep, with highest counts in central Iowa County and in Lafayette County. Winged forms vary considerably, ranging from 0 in more northerly counties to 30 percent. Parasitism heavy in most areas and mummies noticeable. Some fields had better than 50 percent of population either diseased or parasitized. (Wis. Ins. Sur.). MINNESOTA - Increased in alfalfa; counts per 100 sweeps ranged 300-900 in west central district and 200-600 in central district. Predators also increasing but not keeping pace with aphids. (Minn. Ins. Rpt.). NEBRASKA - Moderately abundant in Dundy County; no controls recommended. (Manglitz). Counts 30 per 10 sweeps in Howard County. (Bergman). MISSOURI - Counts low in second-growth alfalfa in

southeast. (Houser, Thomas, Wood). OKLAHOMA - Light in east central area; generally fewer than 50 per 10 sweeps. Moderate to heavy in Kay, Noble, Kingfisher and Kiowa Counties. (Okla. Coop. Sur.). COLORADO - Increasing on alfalfa in Pueblo, Crowley and Otero Counties; 20-100 per 100 sweeps. Lady beetles and flower bugs (Nabis spp.) numerous in all fields. (Schweissing). NEW MEXICO - Light on alfalfa in Dona Ana, Bernalillo, Sandoval, San Juan and Rio Arriba Counties. (N.M. Coop. Rpt.). UTAH - Becoming numerous, 0.5-4 per sweep, in Salt Lake County alfalfa. Present but not numerous in Cache County alfalfa (Knowlton). WYOMING - Very light to light on alfalfa in Washakie, Big Horn, Park and Sheridan Counties; nymphs and adults ranged 15-500 (averaged 275) per 100 sweeps. (Marks). WASHINGTON - All instars present in alfalfa grown for seed in Walla Walla area, but mostly apterous forms; 3-25 per sweep. Lady beetles beginning to pupate. Counts 6-55 per sweep in Yakima and vicinity, Yakima County, with lady beetles about 1 per sweep. (Halfhill, Featherstone). OREGON - Counts in unmowed seed alfalfa fields averaged 50-150 per sweep on May 21. (Featherstone, Halfhill).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Decreased to 8-18 per sweep in observation fields in Brodhead area. Of these 63 percent winged and 8 percent contained wing pads. (Wis. Ins. Sur.). NEBRASKA - Counts 5 per 100 sweeps in Keith County and ranged 6-38 per 150 sweeps in Custer County. (Manglitz). ARKANSAS - Approximately 150 per 100 sweeps on alfalfa in Washington County. (Ark. Ins. Sur.). OKLAHOMA - Counts generally less than 25 per 10 sweeps in east central areas. (Okla. Coop. Sur.). ARIZONA - Decreasing rapidly in old, established alfalfa stands in Graham and Maricopa Counties. Damaging populations remain in some spring plantings. (Ariz. Coop. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Nymphs varied 20-1,240 (averaged 217) per 100 sweeps in alfalfa and clover in northern one-half of State. No adults observed. (Ill. Ins. Rpt.). WISCONSIN - Nymphs nearly grown and numerous in most alfalfa; as high as 15 per sweep in few southern area fields. (Wis. Ins. Sur.). MINNESOTA - Hatching in central and west central areas; counts low in alfalfa. (Minn. Ins. Rpt.). NEBRASKA - Adults and nymphs averaged 10 per 10 sweeps in Hall County alfalfa. (Bergman). WYOMING - Adults light in alfalfa in Washakie, Big Horn, Park and Sheridan Counties; ranged 10-22 (averaged 16) per 100 sweeps. (Marks).

RAPID PLANT BUG (Adelphocoris rapidus) - FLORIDA - Adults 5 per 100 sweeps in alfalfa at Gainesville, Alachua County. (Mead). MISSOURI - Adults and nymphs remain low in southeast. (Houser, Thomas, Wood). ILLINOIS - Nymphs varied 20-360 (averaged 127) and adults 0-40 (averaged 12) per 100 sweeps in clover and alfalfa in northern one-half of State. (Ill. Ins. Rpt.). WISCONSIN - Nymphs forming wing pads and an occasional adult appearing; as high as 5 per sweep in some fields. (Wis. Ins. Sur.). MINNESOTA - Hatch occurred in central and west central districts; counts low on alfalfa. (Minn. Ins. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - FLORIDA - Counts per 100 sweeps of alfalfa at Gainesville, Alachua County, were 41 adults and several nymphs. (Mead). ILLINOIS - Nymphs varied 0-20 (averaged 5) and adults 0-80 (averaged 25) per 100 sweeps in alfalfa and clover in northern one-half of State. (Ill. Ins. Rpt.). WISCONSIN - Adults averaged about 5 per 10 sweeps in most alfalfa in southern part of State; nymphs less common and few forming wing pads in more advanced areas. (Wis. Ins. Sur.). NEBRASKA - Averaged 15 per 10 sweeps in Hall County alfalfa. (Bergman). MISSOURI - Remains noneconomic for most part in southeast; averaged about 15 per sweep in one field. (Houser, Thomas, Wood). ARKANSAS - Counts 25-30 per 100 sweeps on alfalfa in Washington County. (Ark. Ins. Sur.). OKLAHOMA - Ranged up to 6-10 per 10 sweeps on alfalfa in east central area. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Second to fourth instars on alfalfa grown for seed in Yakima and vicinity, Yakima County; 1-5 per sweep. (Featherstone, Halfhill). WYOMING - Increasing in alfalfa; adults per 100 sweeps averaged 52 in Washakie County, 47 in Big Horn County, 68 in Park County and 40 in Sheridan

County. (Marks). UTAH - Moderately numerous on alfalfa in West Jordan area of Salt Lake County; nymphs 3 per sweep on white top mustard. Nymphs on mustards in alfalfa fields from Millville to North Logan in Cache County. (Knowlton). COLORADO - Increasing on alfalfa in Pueblo, Crowley and Otero Counties; 50-300 per 100 sweeps. (Schweissing). ARIZONA - Decreasing on alfalfa in all areas. Some chemical controls necessary in seed fields in Yuma County. (Ariz. Coop. Sur.). LOUISIANA - Abundant on clovers and alfalfa in Plaquemines and Rapides Parishes. (Cancienne et al., May 25).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Adults active on variety of plants in Blacksburg area, Montgomery County. (Tarpley, Pienkowski). NEW YORK - Buildup rapid on alfalfa in Ulster County. (N.Y. Wkly. Rpt., May 25). MICHIGAN - Nymphs and spittle masses reported moderate in several areas. (Hinz, Newman, Sowerby, Burger). INDIANA - Adults ranged 1-61 per sweep on alfalfa in southeast. (Bram). WISCONSIN - Spittle masses increasing in size. Populations ranged from 1-2 per 10 stems in central and east central counties to 10 per 10 stems and as high as 10 per spittle mass in some instances in Grant, Lafayette and Green Counties. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - OHIO - First specimens of season easily collected in alfalfa near Columbus, Franklin County; averaged 6 per 50 sweeps. (Lyon). MICHIGAN - Moderate to light numbers taken in Livingston and Monroe Counties. (Hoffman). ILLINOIS - Adults varied 120-260 (averaged 200) per 100 sweeps in alfalfa in northeast district and 130-640 (averaged 413) in central district. Few nymphs observed in Champaign County. (Ill. Ins. Rpt.). WISCONSIN - Adults more noticeable in alfalfa; as high as 3 per sweep near margins. (Wis. Ins. Sur.). MINNESOTA - Ranged 0-10 per 100 sweeps on alfalfa in central and west central districts. (Minn. Ins. Rpt.). NEBRASKA - Counts 2 per 10 sweeps in Nance County alfalfa. (Bergman). MISSOURI - Occasional specimens found on corn and alfalfa in southeast; counts very low. (Houser, Thomas, Wood).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Counts per 100 sweeps of alfalfa at Gainesville, Alachua County, 28 adults and 15 nymphs. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Slow increase noted on alfalfa in Yuma, Maricopa and Graham Counties. (Ariz. Coop. Sur.). LOUISIANA - Heavy on clover and alfalfa in Plaquemines and Rapides Parishes. (Cancienne et al., May 25). FLORIDA - Counts per 100 sweeps of alfalfa at Gainesville, Alachua County, 8 adults and 1 nymph. (Mead).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Reported present in most alfalfa in east central area. Very little damage reported. (Gates). Counts extremely low in alfalfa in north central and northwest areas; 20-85 larvae (mostly fully grown) per square foot noted under piles of alfalfa in Riley County. These larvae, in combination with dry weather, held back regrowth after cutting. Larvae also seriously damaged forage sorghum adjacent to alfalfa. (Peters).

ALFALFA CATERPILLAR (Colias eurytheme) - OHIO - Adults beginning to fly over forage fields in central area. (Lyon). MISSOURI - Larvae averaged 1-2 per 10 sweeps on alfalfa in southeast. (Houser, Thomas, Wood).

A CLOVER BUD CATERPILLAR (Grapholitha conversana) - IDAHO - Adults found in white clover field in Lewis County; averaged about 1 per sweep. (Dailey).

GREEN CLOVERWORM (Plathypena scabra) - ILLINOIS - Larvae of all sizes varied 10-100, averaged 54, per 100 sweeps in alfalfa and clover in northern one-half of State. (Ill. Ins. Rpt.). OKLAHOMA - Light, scattered populations present in alfalfa in east central counties; 0-3 per 10 sweeps. (Okla. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - One per sweep on alfalfa in Franklin County. (Johnson).

WEBWORMS (Loxostege spp.) - OKLAHOMA - First appearance of year; ranged 0-3 per 10 sweeps on alfalfa in east central area. Larvae also noted in soybeans in Wagoner County. (Okla. Coop. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - IOWA - Attacking soybeans. (Iowa Ins. Inf., May 25). MISSOURI - Averaged 5 per linear foot in field of soybeans in Cape Girardeau County, southeast, with moderate to heavy damage. Heavy in edge of field of soybeans bordered by fence row with heavy growth of weeds and grass in Ste. Genevieve, County, southeast. (Houser, Thomas, Wood).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Light populations occurring on safflower plantings in Five Points area, Fresno County. (Cal. Coop. Rpt.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - First larval entries in fruit expected about June 6-7 in eastern area. Emerged in cages in Geneva May 22 and increased sharply over weekend of May 23; first emergence expected early June in heavily infested orchards. No emergence noted in Monroe County. (N.Y. Wkly. Rpt., May 25). OHIO - Peak emergence from overwintered larvae occurred May 18-20 in Wooster area, Wayne County, northeast. (Forsythe). MICHIGAN - Considerable emergence occurred May 22-26 in central area. (Gilmore, Lincoln, Newman, Klackle, Wooley). INDIANA - Adults continue emergence and egg laying in Vincennes area. Carryover from 1963 light. (Hamilton, May 25). MISSOURI - New entries noted in northwest; additional entries in central area. (Wkly. Rpt. Fr. Grs.). GEORGIA - Damaging 40 percent of fruit in 2 abandoned apple orchards in Gwinnett County. (Vanderford). COLORADO - Adults emerging in Larimer County apple orchards. (Thatcher). UTAH - Three adults taken in blacklight trap May 22. (Davis). OREGON - First moths of season collected in bait pans in Jackson County May 16. (Berry).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Hatched; larvae active in New Haven. (Savos). NEW YORK - First hatch noted May 18 in western area. A minute egg parasite (Trichogramma minutum) heavier than usual in commercial blocks; up to 78 percent of egg masses partially or wholly parasitized in one instance. (N.Y. Wkly. Rpt., May 25). MINNESOTA - Appearing in large numbers in neglected orchards. (Minn. Ins. Rpt.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Appears to be bigger problem than in past few seasons. (Savos). NEW YORK - Numerous in some blocks in Columbia County. (N.Y. Wkly. Rpt., May 25). MISSOURI - Adults taken in Columbia May 24. (Wkly. Rpt. Fr. Grs.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - New brood underway in southeast; new entries in twigs noted May 27 in unsprayed orchards. (Wkly. Rpt. Fr. Grs.).

A LEAF-BLOTCH MINER (Lithocolletis crataegella) - NEW YORK - Blister mines with second instars numerous on under surface of apples leaves locally in eastern area. An unspecified tentiform leaf miner quite numerous in various blocks throughout Columbia County. (N.Y. Wkly. Rpt., May 25).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Abundant again this year on apple and wild rose in Washington County. (Prescott).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Heavy on blue plums in Gwinnett County. (Vanderford). RHODE ISLAND - Common but not heavy on unsprayed apple in Kingston; damaged apple sets common on orchard in Exeter, Washington County. (Mathewson). CONNECTICUT - More active than in past few years. Feeding and egg-laying scars numerous on unsprayed trees. (Savos). NEW YORK - Feeding and egg laying evident on unsprayed sweet cherries at La Grangeville May 22; no hatching

occurred. Evident on Red Delicious apples in Nassau County. Observed feeding and cutting on May 18 in Columbia County. First egg-laying scars found on sweet cherries in Niagara County May 19. (N.Y. Wkly. Rpt.).

ROSY APPLE APHID (Anuraphis rosea) - OHIO - Numerous on terminals of apple in Wayne County, northeast; moving to expanding leaves. (Forsythe). INDIANA - Present in few blocks of apples in Vincennes area, but generally light. (Hamilton, May 25). CALIFORNIA - Light to medium on apple nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.). OREGON - Rolling and curling leaves of apples in Marion County (Stephenson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Unusually light in many Yakima Valley pear orchards; predator activity noted. (Capizzi). OHIO - All stages abundant on pear leaves at Wooster, Wayne County, northeast. (Forsythe). RHODE ISLAND - Adults and nymphs heavy on neglected trees in Exeter, Washington County. (Mathewson).

PERIODICAL CICADAS (Magicicada spp.) - MISSOURI - Adults of Brood IV of a 17-year species started singing May 25 in Waverly and Kansas City areas. (Wkly. Rpt. Fr. Grs.). NEBRASKA - Emergence occurring in Otoe County orchards; last recorded emergence in 1947. Emergence expected in counties bordering Missouri River Valley from Kansas border north to Omaha, Douglas County. (Bergman).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Not abundant in State except in Southington and Cheshire. (Savos.). NEW YORK - Widespread in Wayne County. Generally quite heavy in Monroe County. Control generally good in Orleans County. (N.Y. Wkly. Rpt., May 25). INDIANA - Ranged 3-4 mobile mites and 4-8 eggs per 100 leaves on apples at Vincennes experimental spray blocks; counts on similar spray block at Sullivan showed 0-11 mobile mites and 0-4 eggs per 100 leaves. (Hamilton, May 25). OREGON - First generation completed May 11; eggs of second generation on leaves and twigs of pear trees. (Berry).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Injury starting to show in New Haven and Storrs. (Savos). NEW YORK - Some evidence in Nassau County. Damage extensive in orchard in Ulster County. Heavy unspecified apple sawfly injury observed on Baldwin apple trees in Newburgh area, Orange County. (N.Y. Wkly. Rpt., May 25).

SAN JOSE SCALE (Aspidiotus perniciosus) - IOWA - Very heavy on a many-variety bud-grafted apple tree in Van Buren County; heaviest on yellow varieties (Golden Delicious, Grimes Golden); not present on branches of red varieties (Jonathan, Red Delicious). (Iowa Ins. Inf., May 25).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MISSOURI - Causing concern in northwest area, particularly in trees showing winter injury. (Wkly. Rpt. Fr. Grs.).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Conspicuously damaging in orchard at Granite, Salt Lake County, and damaging in Utah County. (Knowlton, Davis).

A WEEVIL (Magdalis gracilis) - OREGON - Abundant on Satsuma plum tree in Forest Grove, Washington County, May 15. (Prescott).

BLACK CHERRY APHID (Myzus cerasi) - OREGON - Increasing on cherries in Polk and Marion Counties. (Stephenson).

A BLISTER MITE (Eriophyes hybridicola) - CALIFORNIA - Collected on plum tree in orchard at California Polytechnic College, San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - MICHIGAN - First adult of season May 25 in emergence cage in Kent County. (Sayler, Wooley).

A BLUEBERRY TIP BORER (Hendecaneura shawiana) - OHIO - Adults emerging at Wooster, Wayne County, northeast. (Still).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Entries found in early and midseason blueberries. Many eggs noted; moth flight expected to continue 2-3 weeks. (Ins.-Dis. Newsltr.).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Entries found on early and midseason blueberry varieties. Many eggs; moth flight expected to continue 2-3 weeks. (Ins.-Dis. Newsltr).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Damaging blueberries in East Baton Rouge Parish. (Cancienne et al., May 25).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Larvae heavy on cranberry bogs in upper Cape Cod area; light in Plymouth, Wareham, Carver and Rochester, Plymouth County. (Tomlinson).

BLACK-HEADED FIREWORM (Rhopobota naevana) - MASSACHUSETTS - Causing damage on several cranberry bogs in Wareham area, Plymouth County. (Tomlinson).

IMPORTED CURRANTWORM (Nematus ribesii) - NORTH DAKOTA - Larvae in foliage of gooseberry in southeast. (Frye).

GRAPE PHYLLOXERA (Phylloxera vitifoliae)- ALABAMA - Heavy on cultivated grapes in Elmore, Lee and other central counties. (Helms, Barwood et al.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Scattered on leaves of Lake Emerald grape at Gainesville, Alachua County; damage severe on attacked leaves. (Mead).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Occurring on home and nursery grape plantings in Maricopa County and in Fort Huachuca area, Cochise County. (Ariz. Coop. Sur.).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Generally light on avocados in San Diego County. (Cal. Coop. Rpt.).

A WEEVIL (Pachnaeus opalus) - FLORIDA - Collected on Japanese persimmon at Gainesville; damaging leaves. (Mead).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - One male collected in Starr County; 1 male, 2 females and 6 larval infestations found in Hildago County. (PPC South. Reg., Apr. Rpt.). MEXICO - Male trapped near United States-Mexican border in Tijuana, Baja California, April 13. (PPC Mex. Reg.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Continues heavy on new citrus growth in Yuma County; controls continue necessary. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Nymphs and adults medium on citrus in Sanger, Fresno County. (Cal. Coop. Rpt.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Varying in citrus groves throughout Tulare County. (Cal. Coop. Rpt.).

SPIDER MITES - LOUISIANA - Feeding on citrus in Pointe Coupee Parish. (Cancienne et al., May 25).

BLACK-MARGINED APHID (Monellia costalis) - ARIZONA - Moderate to heavy on pecan trees in Graham County; ranged 10-45 per leaf. (Ariz. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Approximately 15 percent of pecans infested with eggs in Okemah area; high percent of "red" egg count.

"Red" eggs found in Bixby area early in week in lighter numbers. (Okla. Coop. Sur.). ALABAMA - Few first-generation larvae attacking young pecans in light-set crop in Dallas County. (McQueen).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Appearing on pecans and persimmons in southern area. (Cancienne et al., May 25). ALABAMA - Few broods noted in pecans and sweetgum in Houston, Henry and Barbour Counties. (Kimbrough, West et al.).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Eggs, larvae and pupae heavy in almond fruit in Madera, Madera County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - LOUISIANA - Light on potatoes in Lafourche Parish; medium on potatoes in West Carroll Parish. (Cancienne et al., May 25). GEORGIA - Heavy on potatoes in Gwinnett County. (Vanderford). VIRGINIA - Adults being replaced by larvae on Eastern Shore. (Hofmaster). DELAWARE - Adults, eggs and very young larvae abundant in commercial tomatoes; causing rather heavy feeding injury locally in northern Sussex County. (Burbutis, Kelsey). NEW JERSEY - Eggs hatching; many "hardshells" still in tomato fields. (Ins.-Dis. Newsltr.). NEW YORK - Adults moderately heavy in most Suffolk County fields; 4-6 per plant. Eggs numerous; controls underway. (N.Y. Wkly. Rpt., May 25). RHODE ISLAND - Adults continue attack on emerging potato plants. Eggs noted in West Kingston, Washington County; heavy in Newport County. (Mathewson, Peabody). OHIO - Adults recovered in Allen County, northwest, and Geauga County, northeast. (Leimbach, Custer). WISCONSIN - Adults causing some damage to tomato plants in home gardens in Winnebago County. (Wis. Ins. Sur.). COLORADO - Adults and eggs ranged 1-6 per 10 infested potato plants in Weld County. (Jenkins). IDAHO - Adults extensively damaging potatoes near Parma. (Scott).

POTATO PSYLLID (Paratrioza cockerelli) - NEBRASKA - Ranged 21-118 and averaged 54 per 100 sweeps in panhandle area of potato cull piles and matrimony-vine (Hagen). COLORADO - All stages continue high numbers on matrimony-vine in Weld County. Early potato fields show 2-4 adults per 100 sweeps; eggs ranged 2-4 per plant when adults observed. (Jenkins). Building up rapidly in Arkansas Valley on matrimony-vine; adults averaged 100 per 100 sweeps; 0-4 eggs and 0-5 nymphs per leaf. In Arkansas Valley, ranged 0-40 per 100 sweeps on potatoes; none taken on tomatoes. (Schweissing).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Light to heavy on tomatoes in West Carroll and East Baton Rouge Parishes. (Cancienne et al., May 25).

APHIDS - LOUISIANA - Unspecified species medium to heavy on pepper and tomatoes in St. James Parish and heavy on tomatoes in Pointe Coupee Parish; also heavy on peppers in Tangipahoa Parish. Macrosiphum euphorbiae heavy on tomatoes in East Baton Rouge Parish. (Cancienne et al., May 25). ALABAMA - Very heavy on sweetpotatoes in Baldwin County field; 50-100 per leaf. (Oates).

A SPRINGTAIL - NEW MEXICO - Seedling chili pepper plants apparently damaged by undetermined species in home gardens in Socorro area, Socorro County. (N.M. Coop. Rpt.).

POTATO FLEA BEETLE (Epitrix cucumeris) - IOWA - Eating leaves of potato, tomato, radish and other garden crops. (Iowa Ins. Inf., May 25). RHODE ISLAND - Heavy feeding noted on potatoes in Kingston, Washington County. (Kerr).

CUTWORMS - UTAH - Damage above normal to cabbage and tomato sets in Salt Lake County. (Knowlton, Parrish).

CABBAGE MAGGOT (Hylemya brassicae) - RHODE ISLAND - Infested radishes in Wakefield; heavy on cabbage in Peace Dale, Washington County. (Mathewson). NEW JERSEY - Four traps at Great Meadows, Warren County, yielded 4 adults May 28. (Ins.-Dis. Newsltr.). OHIO - Heavy on cabbage plants in Sandusky and Lorain Counties, north central. (Sleesman). WISCONSIN - Well underway in southeast. (Wis. Ins. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - LOUISIANA - Damaging cabbage in East Baton Rouge and Plaquemines Parishes. (Cancienne et al., May 25). ALABAMA - Second hatch now appearing on cabbage in Lee County. (Barwood). NEW JERSEY - Fairly heavy larval feeding noted on cabbage in Burlington County. (Ins.-Dis. Newsltr.).

DIAMONDBACK MOTH (Plutella maculipennis) - LOUISIANA - Damaging cabbage in East Baton Rouge and Plaquemines Parishes. (Cancienne et al., May 25). NEW JERSEY - Fairly heavy larval feeding noted on cabbage in Burlington County. (Ins.-Dis. Newsltr.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Caused light to heavy damage to 74.5 percent of 200 cabbage plants at Sanford, Seminole County. (Desin).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - IDAHO - General infestation on rape fields in Lewis County. Averaged 5+ per sweep in one field. (Dailey).

CABBAGE APHID (Brevicoryne brassicae) - IOWA - Damaging cabbage plants in Union County; abundant on underside of curled leaves. (Iowa Ins. Inf., May 25).

PEA APHID (Acyrthosiphon pisum) - OREGON - Counts in early processing peas very low due to controls. On late peas, 2-3 inches high, alates found on only 5 percent of plants. (Featherstone, Halfhill). WISCONSIN - Counts per 10 sweeps in peas as follows: Northern Iowa County, 0-3 on blossoming peas; central Iowa County, zero on 2-inch peas, 2-5 on 6-inch to blossoming peas; southern Trempealeau County, 1-7 on blossoming peas and 0-2 in Green Lake County; Dane County, 5 on 8-inch peas, 1-4 on blossoming peas. Winged forms vary considerably, ranging from zero in more northernly counties to 30 percent. Some fields with better than 50 percent of population diseased or parasitized. (Wis. Ins. Sur.).

BEAN APHID (Aphis fabae) - ALABAMA - Extremely heavy on southern peas and beans in Jefferson County. (Bagby, Johns).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults very common; range 15-20 per 10 sweeps in large peafield in Sussex County. (Burbutis, Kelsey).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Adults present on beans in most areas of Sussex County; light feeding injury and first eggs of season noted May 26. (Burbutis, Kelsey). ALABAMA - Light to heavy on beans in Etowah County. (Bagby).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Heavy on beans in Gwinnett County. (Vanderford). LOUISIANA - Heavy on southern peas and beans in West Carroll and East Baton Rouge Parishes. (Cancienne et al., May 25). IOWA - Riddling leaves of garden beans in southern two-thirds of State. (Iowa Ins. Inf., May 25).

A LEAF MINER FLY (Liriomyza munda) - DELAWARE - Probably species common in some early snap beans in Sussex County. (Burbutis, Kelsey).

ASPARAGUS BEETLES (Crioceris spp.) - NORTH DAKOTA - Adults of C. duodecimpunctata feeding on asparagus in southeastern gardens. (Frye). OHIO - Eggs and larvae of C. asparagi heavy on asparagus in Columbiana County, northeast. Many adults present; asparagus unfit for use. C. duodecimpunctata adults light on asparagus in same area. (Custer).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Survey at Cedarville, Cumberland County, yielded 14 adults May 28. Traps at Great Meadows, Salem County, yielded 73 adults. (Ins.-Dis. Newsltr.). WISCONSIN - Infesting onions in Price County. (Wis. Ins. Sur.).

ONION THRIPS (Thrips tabaci) - COLORADO - Building up rapidly on set onions in Otero County; 5-30 per plant. (Schweissing).

THRIPS - NEW MEXICO - Medium to heavy on onions in Las Cruces area, Dona Ana County. Controls applied in many fields. (N.M. Coop. Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - IDAHO - Survey May 18-22 indicates increasing nymphal development over earlier surveys. Averaged 4+ nymphs per square foot in Indian Cave area. Light adjacent to Mountain Home, particularly in Reverse Siding and Rattlesnake areas. (PPC).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Heavy migration to small sugar beets (4-8 leaves). Average per 100 plants in 7 fields 184 apterae and 21 alatae. Yellows and mosaic increasing very rapidly on all sugar beets in Walla Walla, Walla Walla County. (Landis, Wallis).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - First hatching noted; 0-8 percent of plants infested in 7 fields examined. Averaged 5 per plant in Walla Walla, Walla Walla County. (Landis). RHODE ISLAND - Heavy on beets in Peace Dale, Washington County. (Stessel, Mathewson). VIRGINIA - Heavy on beets locally in Roanoke and Augusta Counties. (Tarpley, Morse, Allen).

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Trace numbers of adults noted in Fort Collins area, Larimer County. (Jenkins). Large numbers of adults collected at Rocky Ford, Otero County, light traps. (Schweissing).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MICHIGAN - Adults taken in small numbers in Allegan, Livingston and Monroe Counties. (Janes, Hoffman).

CUCUMBER BEETLES - ALABAMA - Cantaloups severely attacked by Acalymma vittata in Jefferson County; 1-3 per plant. Similar conditions appearing in Tuscaloosa and Walker Counties. (Bagby, Johns et al.). LOUISIANA - A. vittata heavy on squash in East Baton Rouge Parish. Diabrotica undecimpunctata howardi heavy on cucurbits and beans in East Baton Rouge Parish. (Cancienne et al., May 25).

SQUASH BEETLE (Epilachna borealis) - LOUISIANA - Heavy on squash and cucumbers in East Baton Rouge Parish. (Cancienne et al., May 25).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - VIRGINIA - Damaged newly set sweetpotatoes on Eastern Shore. (Hofmaster).

SWEETPOTATO LEAF BEETLE (Typophorus nigritus viridicyaneus) - LOUISIANA - Collected on morning-glories in St. Landry Parish. (Cancienne et al., May 25).

FLEA BEETLES - LOUISIANA - Heavy on sweetpotatoes in West Carroll Parish; light to moderate in southern part of State. (Cancienne et al., May 25).

TORTOISE BEETLES - LOUISIANA - Heavy on sweetpotatoes in West Carroll Parish. (Cancienne et al., May 25).

RHUBARB CURCULIO (Lixus concavus) - OHIO - Most rhubarb observed in home gardens throughout northeast section injured. (Lyon).

A PAMPHILIID SAWFLY (Pamphilius sitkensis) - IDAHO - Females abundant on raspberries in Moscow area week of May 18. Eggs now on midrib of underside of leaves. Det. by W. W. Middlekauff. (Barr).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Difficult to control in strawberry fields in Washington County. (Stephenson).

MEADOW SPITTLEBUG (Philaenus spumarius) - MASSACHUSETTS - Small numbers noted on strawberries at Falmouth. (Tomlinson).

STRAWBERRY WEEVIL (Anthonomus signatus) - MASSACHUSETTS - Small numbers on strawberries in Falmouth. (Tomlinson).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - COLORADO - Numerous on strawberries at Rocky Ford, Otero County. (Schweissing).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Larval populations on Willamette Valley strawberry fields slightly less than in 1963. (Stephenson).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Ruined strawberry planting at Salisbury, Wicomico County. (U. Md., Ent. Dept.). MINNESOTA - T. telarius heavy on strawberries. (Minn. Ins. Rpt.).

GRAY GARDEN SLUG (Deroceras reticulatum) - CALIFORNIA - Heavy on strawberry plants and fruit in La Grange, Stanislaus County. (Cal. Coop. Rpt.).

A SNAIL - GEORGIA - Damaged 100 percent of fruits in strawberry plantings in Gwinnett County. (Vanderford).

POTATO LEAFHOPPER (Empoasca fabae) - MASSACHUSETTS - First adults of season noted in Hampden and Hampshire Counties May 27. (Shaw). DELAWARE - Adults rather numerous; averaging 4 per 10 sweeps in large snap bean field in Sussex County. (Burbutis, Kelsey). PENNSYLVANIA - Averaged 2 per sweep on potatoes and alfalfa in southeast. (Menusan). IOWA - Noted on potatoes, tomatoes and beans. (Iowa Ins. Inf., May 25). WISCONSIN - Few present in pea fields. (Wis. Ins. Sur.).

BANDED-WING WHITEFLY (Trialeurodes abutilonea) - ARIZONA - Occurring on squash and tomato plants in home gardens in Graham County. (Ariz. Coop. Sur.).

SOUTHERN POTATO WIREWORM (Conoderus falli) - SOUTH CAROLINA - During period May 18-31, total of 1,148 adults caught in a blacklight trap located at Charleston; 576 first week and 572 second week. Det. by A. Day. (Reid).

TOBACCO INSECTS

TOBACCO HORNWORM (Protoparce sexta) - VIRGINIA - First adult taken in light trap at Chatham, Pittsylvania County, May 25. (Dominick).

APHIDS - LOUISIANA - Heavy on tobacco in St. James Parish. (Cancienne et al., May 25).

COTTON INSECTS

THRIPS - GEORGIA - Moderate on cotton in Spalding County (Beckham); 1-4 per plant in northwest, north and northeast areas (Johnson). TENNESSEE - No heavy infestations found in western cotton-growing area. Most fields have very light infestations, while a lesser number have moderate infestations. (Locke). MISSOURI - Moderate to heavy on cotton in 4-6 leaf stage in southeast and causing moderate to heavy leaf curl. Infested plants ranged from 50 percent in some fields to 100 percent in others. (Jones). MISSISSIPPI - Infestations light to heavy in delta area, with most infestations light. Average per plant in infested fields 0.96. Some untreated cotton showing considerable injury. (Pfrimmer et al.). LOUISIANA - Light to medium in Bossier, Rapides, Caddo, Franklin, East Carroll, West Carroll and St. Landry Parishes; 64-263 per 100 plants in Bossier and Rapides Parishes and 6-44 per 100 plants in other parishes. (Cancienne et al., May 25). TEXAS - Infestations generally light in McLennan and Falls Counties. (Cowan et al.). OKLAHOMA - Heavy numbers of Frankliniella sp. reported from Tillman County, southwest; only light numbers noted in fields checked in east central area. (Okla. Coop. Sur.). ARIZONA - Frankliniella spp. continue to increase on cotton in some areas of Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). CALIFORNIA - Infestations generally light in Kings and Fresno Counties. (Leigh, May 21). Some fields show considerable leaf distortion in Kern County. (Black, May 21).

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Most active in southeast area. Puncturing squares where available and cutting buds and leaves to very light degree in most fields. (McQueen et al.). TENNESSEE - Only one weevil has been observed feeding in terminal buds of cotton in western area; found in McNairy County on May 26. (Locke). MISSISSIPPI - Continues light in delta area; one male found on cotton in field in Washington County on May 25. One male also taken from trap plants during week. (Pfrimmer et al.). TEXAS - Activity remains very light in McLennan and Falls Counties. (Cowan et al.).

A WEEVIL (Compsus auricephalus) - TENNESSEE - Causing some injury to foliage of cotton in isolated fields in Lake and Obion Counties; same fields found infested at this time in 1963. Average number per hill of cotton was 3; same as last year. (Locke).

A DARKLING BEETLE (Eleodes sp.) - CALIFORNIA - Outbreak populations occurred in western Kings County. Migrated from small grain fields and desert areas. Serious damage resulted. Chemical treatment of cotton and barrier strips controlled infestations. Infestations of darkling beetles are only periodic, occurring only once in 5 or 10 years. (Leigh, May 21).

BOLLWORMS (Heliothis spp.) - MISSISSIPPI - Eggs reported in a few fields in delta area. (Pfrimmer et al.). LOUISIANA - Eggs and larvae appearing on cotton in Rapides Parish; eggs 3 per 100 feet of row. (Cancienne et al., May 25). TEXAS - Total of 102 H. zea larvae found on corn, maize and alfalfa in McLennan and Falls Counties. Eggs averaged 0.5 and larvae 0.4 per 100 terminals in 22 treated cotton fields and 0.3 eggs and 0.5 larvae per 100 terminals in 12 untreated cotton fields. (Cowan et al.).

BEET ARMYWORM (Spodoptera exigua) - ALABAMA - Two larvae observed feeding on cotton in Dallas County. (Risher).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Heaviest emergence from test cages occurred May 20 when 73 moths emerged. Total emergence for week, 316. (Ariz. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Larvae observed on cotton in Tuscaloosa and Morgan Counties. (Jarrett).

A WEBWORM (Loxostege sp.) - OKLAHOMA - Heavy infestation reported damaging cotton in Tillman County, southwest. (Okla. Coop. Sur.).

LOOPERS - LOUISIANA - Present in unusual numbers in Caddo and Rapides Parishes; much more abundant than normal for time of year. (Cancienne et al., May 25).

COTTON FLEAHOPPER (Psallus seriatus) - ALABAMA - An extremely heavy infestation observed in Dallas County; 1 per 12 inches of row, but no appreciable damage observed. (McHugh). TEXAS - Infestation averaged 9.3 per 100 terminals in 22 treated fields and 30.7 in 12 untreated fields (overall average 14.6) in McLennan and Falls Counties. Maximum infestation was 70.5 per 100 terminals. (Cowan et al.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Increasing rapidly and forcing control applications on cotton in Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Light populations occurring in some stub cotton fields in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - More abundant in cotton than former years in Chowchilla area of Madera County. (Johnson, May 19). Still abundant but only a few fields show damage in Kings County. (McCutcheon, May 21).

FLEAHOPPERS - LOUISIANA - Heavy, localized infestations in northern Caddo Parish; light to moderate in Rapides and Bossier Parishes. (Cancienne et al., May 25).

COTTON APHID (Aphis gossypii) - GEORGIA - Very light on cotton in north, northwest and northeast areas. (Johnson). ARIZONA - Remains light in Graham, Pima, Yuma, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

APHIDS - TENNESSEE - Present over western cotton-growing area, but infestations generally light with a few moderate infestations. (Locke).

SPIDER MITES (Tetranychus spp.) - ARIZONA - Light on cotton generally; few heavy, localized infestations in Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Common in a few fields in Kern and Fresno Counties. (Leigh, May 21). Increasing in areas of Madera County adjacent to alfalfa. (Johnson, May 19). T. atlanticus evident in many fields in Kings County. (McCutcheon, May 21). Untreated fields show populations in Kern County. (Black, May 21).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

CANKERWORMS - NORTH DAKOTA - Remain a problem. Severe defoliation of scattered trees observed. Hosts include elm, ash, apple and plum. In Fargo, relative abundance of larvae has been 82 percent Alsophila pometaria and 18 percent Paleacrita vernata. (Post, McBride). MINNESOTA - Infestations spotty and apparently not so intense in some areas as in 1963. Treatments not justified in Minneapolis-St. Paul area. Heavy infestation reported in Fergus Falls and Thief River Falls. (Minn. Ins. Rpt.). WISCONSIN - Larvae of A. pometaria and P. vernata numerous on May 21 at various observations points in western Columbia County where defoliation of elm, oak, cherry and other trees was becoming conspicuous. Larvae also a nuisance in vicinity of Montello and Buffalo Lake in Marquette County and in Trempealeau County. (Wis. Ins. Sur.). MICHIGAN - Larvae of P. vernata and A. pometaria reported numerous in several Lower Peninsula counties; injury to blueberries reported from Muskegon County. (Janes, Burger). CONNECTICUT - Increasingly noticeable on fruit and shade trees; not as abundant as former years but enough to cause defoliation in localized spots. (Savos). NEW JERSEY - Infestations heavy in several areas of State; leaf rollers also heavy. (Ins.-Dis. Newsltr.).

FALL CANKERWORM (Alsophila pometaria) - NEW YORK - Causing light damage to hawthorn, boxelder, maple, cherry and crab apple in western area; damage severe on birch, elm and oak. (N.Y. Wkly. Rpt., May 25).

GYPSY MOTH (Porthetria dispar) - VERMONT - Prevalent in many areas; seriously defoliating ornamental trees. (MacCollom, May 25). MASSACHUSETTS - Infestation area expanded appreciably from 1963 with larvae common in lower Plymouth County to extremely abundant in upper Barnstable County where 100 percent defoliation can be expected in rather large areas if controls not applied. (Tomlinson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MINNESOTA - Nests conspicuous on broadleaf trees and shrubs in some parts of State. (Minn. Ins. Rpt.). RHODE ISLAND - Much public consternation regarding roving caterpillars in many parts of suburban Providence and Kent Counties. Small numbers of nests in southern part of State (Washington County) contrasts greatly with situation in northern area of State. (King, Mathewson, Veilleux). MICHIGAN - Full-grown larvae migrated from host trees in southern counties; statewide infestations appeared generally lower than in 1963. (Lincoln, Hinz).

FOREST TENT CATERPILLAR (Malacosoma disstria) - COLORADO - Larvae (third instar) moderate on willow, cottonwood and poplar in Larimer County. (Thatcher). IDAHO - Egg clusters abundant on fruit and ornamental trees. Larvae abundant with infestations general in Sandpoint area. Severe larval damage occurring. (McPherson). In Moscow area, larvae abundant and commencing to form large tents. However, apparently 2 periods of hatching occurred since larvae vary in size from first stage to approximately third stage. (Manis).

LINDEN LOOPER (Erannis tiliaria) - NEW YORK - Feeding on linden in Nassau County. (N.Y. Wkly. Rpt., May 25).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Third and fourth instars present in staminate cones of jack pine in central and north central districts. Heavy staminate cone production should sustain high population in some areas and some moderate to serious defoliation can be expected. (Minn. Ins. Rpt.). WISCONSIN - Larvae present in normal numbers in Wood, Juneau, Adams and Jackson Counties. Light infestations reported from Marinette and northwest counties. Some noticeable defoliation may occur in local areas in northern Adams County although parasite and predator picture looks good. (Wis. Ins. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEW YORK - Larvae active in western area, beginning to enter new developing candles. (N.Y. Wkly. Rpt., May 25). MICHIGAN - Of a 25-twig sample taken from a Livingston County Scotch pine plantation on May 26, population 16 percent pupae, 36 percent live larvae and 48 percent dead larvae. Apparently a disease and parasites responsible for heavy death toll among larvae recently. (Dowdy).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Larvae mostly in third stage in Douglas County on May 22. Aerial treatments to begin on May 27 on approximately 9,000 acres of timber. (Wis. Ins. Sur.).

JUNIPER WEBWORM (Dichomeris marginella) - MARYLAND - Infesting several junipers at Easton, Talbot County. (U. Md., Ent. Dept.).

MAY BEETLES (Phyllophaga spp.) - WISCONSIN - Adults continue to emerge in large numbers and much defoliation of poplars in Green Lake County and of maples in Walworth County reported. Various trees also reported being stripped in Waukesha County and emergence occurring as far north as Washburn County. A heavy flight encountered between Eau Claire and Hixton on May 14. P. rugosa species caught most frequently in Dane County blacklight traps and over 90 percent of those spaded up from sod were females of this species. The next most common species in area was P. fusca followed by P. implicata. Collections from Platteville indicate P. futilis as dominant followed by P. rugosa and P. fusca. Phyllophaga tristis somewhat more common at that location than in Dane County area. (Wis. Ins. Sur.). NEW MEXICO - Phyllophaga sp., probably koehleriana, began pupating in rangeland area near Raton, Colfax County. Larvae previously caused serious damage to rangeland grasses. (N.M. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - GEORGIA - Larvae moderate on elm in Hart County. (Mathews). KANSAS - Larvae 6-10 per leaf on elms in Saline County, central area. Some larvae fully developed and migrated to base of trunk to pupate. (Thompson). OKLAHOMA - Extensive, widespread defoliation continues throughout State. (Okla. Coop. Sur.). ARIZONA - Increasing rapidly on elms in Phoenix area of Maricopa County. (Ariz. Coop. Sur.). IDAHO - Adults abundant around trunks of elms and on ground in Jerome, Jerome County. (Priest). UTAH-Still scarce on trees in Salt Lake County infested areas. (Knowlton).

A LEAF BEETLE (Altica plicipennis) - IDAHO - Extremely abundant on willow in a growing around margin of American Falls Reservoir in Power County. Populations extremely abundant; have moved into windbreaks around farm homes in vicinity of reservoir. Damage by adults extreme and controls being considered. (Schow).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Adults caused moderate injury to red oaks at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

BARK BEETLES - LOUISIANA - Damage by Ips spp. to pine throughout northern area in groups of 3 or 4 to 20 trees in each location. (Cancienne et al., May 25).

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - WISCONSIN - A heavy infestation reported in Marinette County on May 19. Nearly full-grown larvae observed in central Adams County on Scotch pine on May 21. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - High populations found on Jack pine and Scotch pine in southern parts of north central and northwest districts. (Minn. Ins. Rpt.). WISCONSIN - Occasional spittle masses containing 1-2 nymphs observed on Jack pine in Adams County on May 21. (Wis. Ins. Sur.).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - WISCONSIN - About two-thirds of eggs hatched by May 19 in Marinette County. Hatching completed on red pine planting locally in Adams County by May 21. (Wis. Ins. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MICHIGAN - Eggs forming inside females taken in Livingston County May 26; males emerged. (Wilson).

LACE BUGS - ALABAMA - Rather heavy on leaves of hickory, pecan and walnut in Randolph County. (Barwood). KANSAS - Corythucha ciliata 2-3 per leaf on sycamore in Saline County. (Thompson).

A COREID BUG (Leptocoris rubrolineatus) - CALIFORNIA - Nymphs heavy on maple trees and on grass in Oroville, Butte County. (Cal. Coop. Rpt.).

WHITE-PINE APHID (Cinara strobi) - MICHIGAN - Populations light in Sanilac County; moderate on Scotch pine in Livingston County. (Sowerby, Janes).

EUROPEAN ELM SCALE (Gossyparia spuria) - KANSAS - Crawlers emerging in Saline County; earliest emergence in several years. About 25 percent of American elms in northwest quarter of Saline County have been killed or will be dead by end of 1964 from attacks by this pest. (Thompson).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - INDIANA - Larvae causing partial defoliation of hard maples at Bourbon, Marshall County, north central. (Schuder). OHIO - Maple leaves attacked in various parts of State. (Neiswander).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - MICHIGAN - Heavy infestations reported from Kalamazoo, Genesee, Livingston and Ingham Counties; full-grown larvae leaving infested trees in some Scotch pine plantations. (Hinz. Lincoln, Wilson, Janes). PENNSYLVANIA - Very abundant on Scotch pine in northwest area; treatments underway. (Adams).

BIRCH LEAF MINER (Fenusa pusilla) - VERMONT - Injury beginning to show. (MacCollom, May 25). NEW YORK - Conspicuously absent on cut leaf birches in Erie County. (N.Y. Wkly. Rpt., May 25). MINNESOTA - Appearing in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

ELM LEAF MINER (Fenusa ulmi) - NORTH DAKOTA - Larvae working on elm foliage in Fargo and other eastern areas. (Frye).

JACK-PINE SAWFLY (Neodiprion pratti banksianae) - MINNESOTA - Second and third instars found in central district; no serious infestations reported. (Minn. Ins. Rpt.).

A CYPRESS SAWFLY (Susana cupressi) - CALIFORNIA - Medium populations occurring on cypress in Yuba City, Sutter County, and light on Italian cypress in Pauma Valley, San Diego County. (Cal. Coop. Rpt.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - OHIO - Infestations reported on silver maple throughout State. Heavy infestations reported from Massillon, Stark County, northeast section. (Burns).

APHIDS - NEW YORK - Major problem on trees and shrubs: Rhopalosiphum fitchii abundant on ornamental crab apple, hawthorn and other Crataegus; Eriosoma americanum, Prociphilus imbricator, E. lanigerum (on elm), a woolly birch aphid and Pineus strobi produced young and buildup has begun; Chermes abietis feeding has initiated gall formation; and free-living aphid on oak, elm, birch, spirea and others active and developing. On Scotch pine, very large species feeding and reproducing on new growth. (N.Y. Wkly. Rpt., May 25). MARYLAND - Aphis pomi continues a problem on flowering crab apple in several areas of Prince Georges County; Myzus cerasi heavy on ornamental cherry at Silver Spring, Montgomery County. (U. Md., Ent. Dept.). PENNSYLVANIA - Various species of aphids numerous on maples, elms and oaks in Harrisburg area of Dauphin County; causing heavy honeydew fall. (Sleesman). WISCONSIN - High buildup of aphids noted on nursery stock and ornamentals. Prociphilus fraxinifolii distorting and rolling leaves of ash; Aphis spiraecola becoming very heavy on spirea; and Myzus persicae building up on Ribes sp. (Wis. Ins. Sur.). ARIZONA - Schizolachnus piniradiatae infesting aleppo pines in Fort Huachuca area of Cochise County. (Ariz. Coop. Sur.). CALIFORNIA - Myzocallis bella medium on oak in Descanso, San Diego County. Adults of Periphyllus californiensis heavy on maple tree nursery stock in Millbrae, San Mateo County. Eriosoma lanigerum light on photinia (California holly) nursery plants in Fresno, Fresno County. Macrosiphum euphorbiae medium on strawberry tree (Arbutus unedo) nursery stock in Coalinga, Fresno County. Adults of E. americanum heavy on elms locally in the Town and Country area of Sacramento, Sacramento County; also Phorodon humuli adults on purple leaf plum trees in same area. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - OHIO - Heavy infestations observed on lilac and ash in Van Wert, Van Wert County, northwest section. (Neiswander).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - INDIANA - Egg laying females abundant on maple in several cities in northwest section. (Schuder).

CAMELLIA SCALE (Lepidosaphes camelliae) - OREGON - Infestations heavy on camellia and holly in Willamette Valley. Females laying eggs in cottony masses. (Larson).

A WHITEFLY - RHODE ISLAND - Extremely large numbers of puparia on Japanese holly in Kingston, Washington County. Evidence of death of branches associated with this pest on other property, same locality. Pest seems to be assuming increased importance on this host. (Mathewson).

AZALEA WHITEFLY (Pealius azaleae) - RHODE ISLAND - Countless adults and numerous live and empty puparia on azalea in Peace Dale. (Mathewson).

ROSE LEAFHOPPER (Edwardsiana rosae) - MARYLAND - Caused conspicuous foliage injury to roses in several gardens in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Light infestation on rose in Atlanta. (Ridley). MARYLAND - Larvae close to pupation noted May 29 in a lawn at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

ROSE CHAFER (Macrodactylus subspinosus) - MARYLAND - Adults caused moderate injury to roses, elms and sassafras in several areas of East Salisbury, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Adults extremely abundant and heavily damaging tulip poplar blossoms locally in Blacksburg, Montgomery County. (Rowell).

HOLLYHOCK WEEVIL (Apion longirostre) - VIRGINIA - Adults heavy on hollyhock plants locally at Stafford, Stafford County, on May 4 and Palmyra, Fluvanna County, on May 26. (Tarpley, Beck, Watts).

AN ELDER LONG-HORNED BEETLE (Desmocerus palliatus) - OHIO - Moderate to heavy on elder in Wayne County, northeast. (Still).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - First young bags of season noted on sycamore in Sussex County on May 26. (Burbutis, Kelsey). MISSOURI - Emerging in southern half of State. (Houser, Thomas, Wood). OKLAHOMA - Damage continues on untreated plantings. (Okla. Coop. Sur.).

IRIS BORER (Macronoctua onusta) - MARYLAND - Young larvae caused heavy damage to an iris planting at University Park, Prince Georges County. (U. Md., Ent. Dept., May 22). VIRGINIA - Larvae damaged iris buds at home in Martinsville, Henry County. (Tarpley, May 13).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Scattered on leaves of chrysanthemum at Punta Gorda, Charlotte County (May 18) and at Alva, Lee County (May 25). (Walsh).

WHITE-LINED SPHINX (Celerio lineata) - CALIFORNIA - Larvae causing heavy damage to fuchsia plants locally in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - RHODE ISLAND - Adults emerging in great abundance in Kingston, Washington County. (Mathewson).

COLUMBINE LEAF MINER (Phytomyza minuscula) - DELAWARE - Very abundant in columbine in one area of Sussex County. (Burbutis, Kelsey).

A DOGWOOD SAWFLY (Macremphytus sp.) - GEORGIA - Completely defoliated 2 English dogwoods in Monroe County. (Johnson).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Medium nymphal populations occurring on phlox, Marguerite, pyracantha and daisy flowers in Fresno, Fresno County. (Cal. Coop. Rpt.).

SPIDER MITES - OKLAHOMA - Active on variety of horticultural crops throughout State. (Okla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Collections at same spot and at same time of evening showed distinct reduction of biting rate and number of species involved at Gainesville, Alachua County, 1.2 miles north of courthouse. On May 25 and 26, Aedes atlanticus/tormentor showed 18 bites per hour. Psorophora ferox showed 6 bites per hour and Aedes infirmatus 24 bites per hour. (Mead). Salt-marsh mosquitoes generally on increase as evidenced from light trap catches during first 2 weeks of May. On May 12, Aedes taeniorhynchus totaled 1,536 females in Sanibel Island trap.

(Fla. Board of Health). CONNECTICUT - Complaints noted statewide. (Savos). RHODE ISLAND - Decrease in complaints statewide. Collections in Kingston, Washington County, May 26 made of Aedes intrudens and A. canadensis. (Mathewson). MICHIGAN - Adults much more numerous in areas near swampy breeding sites. (Newman, Bowers, Sowerby). WISCONSIN - Considerable activity in most counties of State. Ranges from occasional to vicious biting. Many reports of cattle bothered while grazing. Specimens examined in southern area all Aedes vexans. (Wis. Ins. Sur.). MINNESOTA - In 26 evening biting collections (15 minute periods), 168 females taken; 150 were Aedes vexans. In 60 daytime collections, 525 females taken; 404 A. vexans and 70 A. sticticus. During week ending May 23, larval collections totaled 1,220. A. vexans found in 66 percent, A. cinereus in 9 percent and A. sticticus 3 percent; 25 species taken in larval collections. Collections from 16 light traps during week yielded 1,875 females; 1,360 A. vexans and 227 Culiseta inornata. Emergence of mosquitoes from the flooded bottoms of St. Croix, Minnesota and Mississippi Rivers completed by May 24. Strong southwest winds brought mosquitoes from river bottoms into Minneapolis-St. Paul area in large numbers. This was indicated by 15-minute bite collection in St. Paul in which 44 mosquitoes taken. (Minn. Ins. Rpt.). IOWA - Moderately large numbers of Aedes vexans caught in light trap at Ames. Flood pools now disappeared; new emergence expected after next heavy rain. (Iowa Ins. Inf., May 25). OKLAHOMA - Psorophora spp. annoying in Payne County, north central. (Okla. Coop. Sur.). COLORADO - Large populations of Aedes dorsalis larvae collected in Greeley area week of April 27. Heaviest in pasture pools and oxbow sloughs adjacent to Cache la Poudre River. Treatment of all positive area by city of Greeley gave excellent control to May 25; no reported influx of mosquitoes in populated districts of city. Light trap and natural resting place collections of mosquitoes in Weld County showed adult activity approximately month later than past few seasons, presumably result of dry and unseasonably cool spring. Overwintering, nulliparous females of Culex tarsalis and Culiseta inornata first taken week of April 27; parous and gravid females of these species appeared in collections week of May 11. In Fairplay, Como and Kenosha Pass areas, A. cataphylla found abundant week of May 18. In area around Fairplay (elevation about 10,000 feet), larvae of A. dorsalis, principally in second instar, noted week of May 18. (PHS, Harmston).

BITING MIDGES - UTAH - Extremely annoying to people working or living near south end of Great Salt Lake, especially from Lake Point to Dolomite, Tooele County. (Knowlton).

TABANID FLIES - LOUISIANA - Deer flies medium to heavy in West Carroll Parish. A green-headed horse fly expected to peak in 10-14 days. Heavy in Red River Parish; 2.2 per animal on herd in Iberville Parish; 20 per 10 minutes on trapped animal in Cameron Parish; and 10 per 10 minutes on trapped animal in Beauregard Parish. (Cancienne et al., May 25). GEORGIA - Light on 9 herds of cattle in Spalding County. (Roberts). FLORIDA - Diachlorus ferrugatus continues as minor nuisance in Gainesville, suburban area, Alachua County. (Mead). MARYLAND - Chrysops sp. annoying near wooded areas at Laurel, Prince Georges County. (U. Md., Ent. Dept.). MICHIGAN - Chrysops spp. adults causing annoyance to residents in some areas of Livingston County. (Parker). WISCONSIN - Horse flies and deer flies becoming active in Vilas and Jackson Counties. (Wis. Ins. Sur.).

HORN FLY (Haematobia irritans) - KANSAS - Counts on cattle in northwest range fewer than 25 to about 150 per animal. (Peters). OKLAHOMA - Previous levels continue. (Okla. Coop. Sur.). LOUISIANA - Medium to heavy throughout State. (Cancienne et al., May 25). GEORGIA - Averaged 174 per animal on untreated herd in Spalding County; 8 treated herds averaged 7.8 flies per animal. (Roberts). INDIANA - Adults ranged 10-20 per head on cattle in southeast section. (Bram). NORTH DAKOTA - Adults appearing in McKenzie County. (Brandvik).

BLACK FLIES - MICHIGAN - Annoying populations in Menominee and Livingston Counties. (Bowers). CONNECTICUT - Complaints noted statewide. (Savos). WISCONSIN - Troublesome in Vilas and Jackson Counties. (Wis. Ins. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

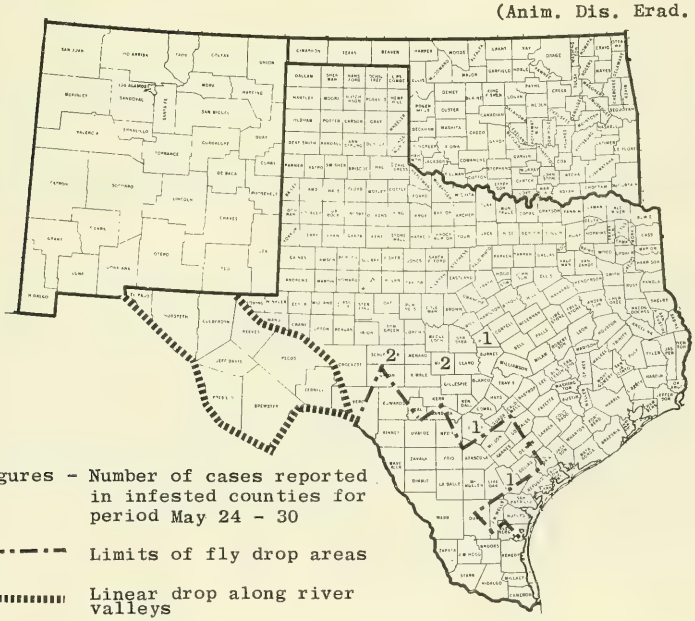
During the period May 24-30, a total of 7 screw-worm cases was reported from TEXAS. First screw-worm cases of this year were reported from Lampasas (1), Mason (2), Schleicher (2) and Bexar (1). Bee County also reported one case. The Republic of Mexico reported 61 screw-worm cases from the States of Sonora (28), Coahuila (8), Nuevo Leon (8), Tamaulipas (15) and Jalisco (2). A total of 100,942,650 sterile screw-worms was released: 32,786,250 in Texas, 1,942,000 in New Mexico, 400,000 in Arizona and 65,814,400 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963:

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,853	9,771	105	1,507	1,764:1,000	6,483:1,000
1963	154	1,170	213	3,238	723:1,000	361:1,000
1964	7	71	168	3,229	41:1,000	22:1,000

* The number of cases not screw-worm is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in numbers of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 24 - 30

Limits of fly drop areas

Linear drop along river valleys

STABLE FLY (Stomoxys calcitrans) - LOUISIANA - Troublesome in urban areas in East Baton Rouge Parish. (Cancienne et al., May 25). WISCONSIN - Principal species in and around barns. (Wis. Ins. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - Appearing and becoming nuisance on cattle in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). OHIO - Counts extremely low throughout State. (Lyon). INDIANA - Adults averaged less than 1 per face on cattle in Washington and Jackson Counties, southern section. Surveys of 2 herds in Ripley and Fayette Counties, southeast, negative. (Bram). WISCONSIN - Reported in Grant, Langlade and Chippewa Counties. (Wis. Ins. Sur.).

CATTLE GRUBS (Hypoderma spp.) - WISCONSIN - Adult activity reported in Trempealeau and Sauk Counties. (Wis. Ins. Sur.). INDIANA - Adults of H. lineatum running cattle in Kentland area, northeast. (Dobson). MICHIGAN - Larvae of H. bovis still present in backs of native cattle in Livingston, Ingham and Shiawasee Counties. Full-grown larvae apparently leaving animals now. Adults light in Sanilac County. (Matthews, Sowerby).

AMERICAN DOG TICK (Dermacentor variabilis) - MINNESOTA - Reported in unusually large numbers from many areas. (Minn. Ins. Rpt.). MICHIGAN - Numerous in Menominee County. First collections of season started in mid-April. (Bowers). MARYLAND - Adults prevalent in and about wooded areas near Laurel, Prince Georges County. (U. Md., Ent. Dept.). OKLAHOMA - Continues annoyance to pets in Stillwater area, Payne County. (Okla. Coop. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - MONTANA - Many areas reported higher-than-average populations, and many reports of engorged ticks on children have been received. (Pratt).

PACIFIC COAST TICK (Dermacentor occidentalis) - CALIFORNIA - Adult taken on child in Meadow Vista, Placer County. (Cal. Coop. Rpt.).

WOOD TICKS - IOWA - Several cases of tick paralysis of horses reported. (Iowa Ins. Inf., May 25).

ANTS - GEORGIA - Formica integra causing considerable concern to residents of Habersham County. Treatments required around chickenhouses in Gwinnett County for Tapinoma sessile. (Vanderford).

A BROWN SPIDER (Loxosceles reclusa) - ILLINOIS - Collected for the first time in Wayne County; specimen in office building and several specimens from home. (Ill. Ins. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - WISCONSIN - Adults migrating into homes in Green Lake, Vilas, Waushara and Columbia Counties. (Wis. Ins. Sur.).

A POWDER-POST BEETLE (Lyctus cavicollis) - CALIFORNIA - Medium in table made of madrone wood in home in Redway, Humboldt County. (Cal. Coop. Rpt.).

LARDER BEETLE (Dermestes lardarius) - INDIANA - Adults leaving walls of homes infested with face fly (Musca autumnalis) last fall. Apparently feeding on remains of cluster fly (Pollenia rudis) within walls of homes in central section. (Bram). MICHIGAN - Noted in homes in southern counties. (Janes).

BLACK CARPET BEETLE (Attagenus piceus) - IOWA - Reported in many parts of State. (Iowa Ins. Inf., May 25).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MICHIGAN - Winged adults reported from Wayne, Kent and Kalamazoo Counties. (Janes, Hinz). MARYLAND - Winged forms of R. virginicus occurred about home at Frederick, Frederick County. (U. Md., Ent. Dept.). IDAHO - R. hesperus caused extensive damage to auditorium floor in school in Roswell; same building damaged about 7 years ago by termites. (Scott). NORTH CAROLINA - R. flavipes swarming in large numbers around shed in Washington County at noon on May 26. Alates received for identification from Caldwell County. (Mount, Andrews). MONTANA - R. tibialis identified in Yellowstone and Carbon Counties. (Pratt).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryzae) - ARIZONA - Heavy infestation found in warehouse in Casa Grande, Pinal County. (Ariz. Coop. Sur.).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - FLORIDA - Counts per 100 sweeps in alfalfa at Gainesville, Alachua County, 13 adults and 2 larvae. (Mead). INDIANA - Adults ranged from less than 1 per 10 sweeps on alfalfa in Bartholomew County to 7 per 10 sweeps in Jackson, Washington, Harrison, Jefferson and Franklin Counties, southeast. (Bram). ILLINOIS - Adults, mainly this species and Coleomegilla maculata fuscilabris, varied 0-140 (averaged 34) per 100 sweeps in alfalfa and clover in northern one-half of State. No larvae observed. (Ill. Ins. Rpt.). WASHINGTON - Full-grown larvae climbing up on structures and pupating in large numbers near Kennewick, Benton County, on May 14; observed during entomology field trip. (Wash. Coop. Rpt.). This species and Coccinella transversoguttata about 1 per sweep on alfalfa in Yakima and vicinity, Yakima County. (Featherstone, Halfhill).

LADY BEETLES - INDIANA - Coleomegilla maculata adults averaged 2 per 10 sweeps on alfalfa in Jackson and Jefferson Counties, southeast. (Bram). MINNESOTA - Adults of unspecified species most prevalent predators of pea aphid in alfalfa in west central and central districts; very few larvae observed. (Minn. Ins. Rpt.). NORTH DAKOTA - Adults ranged 5-15 per 10 sweeps on alfalfa in southeast. (Frye). NEBRASKA - Populations of Hippodamia spp. light to moderate in southwest and central areas. (Manglitz, Bergman). WYOMING - Adult counts per 100 sweeps in alfalfa of several species averaged 26 in Washakie County, 33 in Big Horn County, 41 in Park County and 29 in Sheridan County. (Marks).

DAMSEL BUGS (Nabis spp.) - MINNESOTA - Found in most alfalfa in west central and central districts. (Minn. Ins. Rpt.). ILLINOIS - Varied 0-10, averaged 6, per 100 sweeps in alfalfa and clover in northern one-half of State. (Ill. Ins. Rpt.). NEBRASKA - Ranged 13-22 per 10 sweeps in alfalfa and wheat in Hall and Howard Counties. (Bergman). WYOMING - Adults averaged 8-12 per 100 sweeps in alfalfa in Washakie, Big Horn, Park and Sheridan Counties. (Marks).

BIG-EYED BUGS (Geocoris spp.) - FLORIDA - Counts per 100 sweeps of alfalfa at Gainesville, Alachua County, 11 adults and 25 nymphs. (Mead). WYOMING - Adults ranged 0-18 (averaged 7) per 100 sweeps in alfalfa in Washakie, Big Horn, Park and Sheridan Counties. (Marks).

GOLDEN-EYE LACEWING (Chrysopa oculata) - INDIANA - Adults ranged from less than 1 to 4 per 10 sweeps on alfalfa in southeast. (Bram). ILLINOIS - Few of this species and a brown lacewing observed in alfalfa and clover in northern one-half of State. (Ill. Ins. Rpt.).

A PRAYING MANTIS - KANSAS - Nymphs of unidentified species hatched from egg mass in Riley County on May 27. (Thompson).

PARASITIC BRACONIDS (Aphidius spp.) - OREGON - Averaged 4-5 per sweep in seed alfalfa near Umapine, Umatilla County. (Featherstone, Halfhill).

HONEY BEE (Apis mellifera) - RHODE ISLAND - Swarming continues, but reports not numerous. (Mathewson, Veilleux).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Reported for the first time in Austin County. (PPC South. Reg., Apr. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - MISSISSIPPI - Collected for the first time in Quitman County. (PPC South. Reg., Apr. Rpt.).

A WEEVIL (Phyllobius oblongus) - OHIO - Adults moderate on wild cherry trees in Wayne and Geauga Counties, northeast. (Custer, Shambaugh).

ADDITIONAL NOTES

PENNSYLVANIA - FOUR-LINED PLANT BUG (Poecilocapsus lineatus) beginning to injure ornamentals in southeast area. (Menusan). Adult of A NEEDLE MINER ("Recurvaria" piceaella) emerged and flying in numbers around blue spruce in Centre County. (Udine). Larvae of LINDEN LOOPER (Erannis tiliaria), SPRING CANKERWORM (Paleacrita vernata) and FALL CANKERWORM (Alsophila pometaria) medium on oaks and other decidious trees locally in Berks County. (Sleesman). Medium infestation of FLETCHER SCALE (Lecanium fletcheri) on 0.25-acre of yew in Factoryville Wyoming County. (Andreychik, Simons). Winged adult males of GLOBOSE SCALE (L. prunastri) emerging on plum in Wyoming County (Andreychick) and eggs starting to form under scales on flowering plum in York, York County. Pupation of BLACK VINE WEEVIL (Brachyrhinus sulcatus) starting in York on yew. (Negley). Full-grown larvae of EASTERN TENT CATERPILLAR (Malacosoma americanum) seeking pupation sites in gardens and buildings in Manadahill, Dauphin County. (Sleesman). HOUSE CENTIPEDE (Scutigera coleoptrata) numerous in home in Centre and Washington Counties. (Adams, Udine). A SEED-CORN BEETLE heavy on 5-acre field of corn in Lancaster County. (Pepper). Several species of CUTWORMS caused severe injury to corn in State; most injury consisted of cutting plants off at bases with some leaf injury. SOD WEBWORMS injured some corn fields in Perry County. (Udine).

MONTANA - Three areas reported ARMY CUTWORM (Chorizagrotis auxiliaris) damage, but acreage small in each case. Fallon, Dawson and Park Counties involved. PEA APHID (Acyrthosiphon pisum) reported in section of alfalfa seed-growing area (eastern area) in damaging numbers. SPRUCE NEEDLE MINER (Taniva albolineana) in evidence in many areas of State but confined to ornamentals; not known in forest. A large BLISTER BEETLE (Meloe sp.) reported from several areas on rangeland. An ARMORED SCALE (Chionaspis sp.) collected on willow; this is first record for State. WOOD TICKS so serious in many counties that dipping vats were established in several locations with request for more. PALE WESTERN CUTWORM (Agrotis orthogonia) reported on large acreage of Teton County. (Pratt).

NORTH CAROLINA - A WIREWORM (Melanotus communis) caused extensive damage to about 2 acres of corn in 20-acre field in Washington County and caused some damage in small area on another farm. Both fields contained soil high in organic matter. Single specimens also collected in Rowan and Burke Counties. (Falter, Whitford, Mount). Larvae of a CURCULIO (Conotrachelus sp.) infested pecan shoots in Caswell County. (Aldridge, Mount). Undetermined WIREWORMS reported to have damaged 4 cotton fields (4-38 percent) in Nash County. (Shackleford). MAPLE BLADDER-GALL MITE (Vasates quadripedes) present on maple leaves in Hertford County. (Robertson). Larvae of ELM LEAF BEETLE (Galerucella xanthomelaena) on elm leaves in Caldwell County. (Andrews, Jones). LESSER MEALWORM (Alphitobius diaperinus) adults present in considerable numbers in poultry house in Pender County. (Walker, Mount).

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	*Agrotis ipsilon* (black cutworm)	*Carpocapsa pomonella* (codling moth)	*Chorizagrotis auxiliaris* (army cutworm)	*Estigmene acrea* (salt-marsh caterpillar)	*Faronta diffusa* (wheat head armyworm)	*Feltia subterranea* (granulate cutworm)	*Heliothis virescens* (tobacco budworm)	*Heliothis zea* (bollworm, corn earworm)	*Laphygma frugiperda* (fall armyworm)	*Loxostege commixtalis* (alfalfa webworm)	*Loxostege similalis* (garden webworm)	*Loxostege sticticalis* (beet webworm)	*Ostrinia nubilalis* (European corn borer)	*Peridroma saucia* (variegated cutworm)	*Prodenia ornithogalli* (yellow-striped armyworm)	*Protoparce quinquemaculata* (tomato hornworm)	*Protoparce sexta* (tobacco hornworm)	*Pseudaletia unipuncta* (armyworm)	*Spodoptera exigua* (beet armyworm)	*Trichoplusia ni* (cabbage looper)	Major crop **
ARKANSAS																								
Hope 5/21-27				0						0	32						2				2			
Kelso 5/21-27				0						0	2						4				0			
CALIFORNIA																								
Davis 5/23-29			BL	3	1				4								6				45			Misc.
FLORIDA																								
Gainesville 5/25			BL						4									2						
GEORGIA																								
Tifton 5/21-27			BL							0	1								0	2				
INDIANA (Counties)																								
Vanderburgh 5/24-27																41		1			2			
Jackson 5/23-26											2					4	5	1		4	2			
Franklin 5/22-27																3				8	22			
Tippecanoe 5/25-28																9		2		3	7			
Jasper 5/22-26																49	1	20		32	122			
ILLINOIS (County)																								
Champaign 5/22-28	47-83	0.06"		6												1	10	12			37			
KANSAS																								
Garden City 5/20				4	104			2			1						4				2			
Hays 5/21				2	32									spp.			8				15			
Manhattan #1 5/23-26				4	81						1						28	7			22			
Manhattan #2 5/22-25				8	596						32			40			204	124			430			
Mound Valley 5/20				4	2												8	2			12			
MISSISSIPPI																								
Stoneville 5/22-28	67-97	0.18"	MV	6			5		2		4						64	16		10	30			
Stoneville 5/22-28	67-97	0.18"	BL	5							11						30	19		21	14			
MISSOURI																								
Portageville 5/23-29				1							2					1	2	5			4			
Columbia 5/14-25				5												2	5		7		8			
NEBRASKA																								
Bushnell 5/9-18				1		310		113									23				4			
Chappell 5/7-13						62											11				31			
Chappell 5/14-21						574		276									4				17			
Kearney 5/12-18				2		38		13									11				8			
North Platte 5/14-20				12		10253		102			7						852				947			
Ogallala 5/13-19						141		43			1						101				72			
NORTH DAKOTA																								
Fargo 5/22-29				2		2									8		4				21			
SOUTH CAROLINA																								
Charleston 5/18-24	61-90	0	BL	7			0		3	0	1	0					9	9	1	3	4		8	
Charleston 5/25-31	60-95	2.40"	BL	2			0		8	0	2	0					37	10	0	0	6		19	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Temperature F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Choriastocrotis auxiliaria (fall garden caterpillar)	Feltiomma acres (fall armyworm)	Feltia diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege similalis (garden webworm)	Ostrinia nubilalis (European corn borer)	Perdicoma satula (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
TENNESSEE (Counties)																								
Johnson 5/12-18				9												3	1			11				
Maury 5/12-18				10						4						11				36				
Maury 5/19-25				14						9						11			7	21				
Robertson 5/12-18				13						1						15	1			19				
Robertson 5/19-25				4						2						1			1	9				
Cumberland 5/12-18				6						1						2	1			16				
Cumberland 5/19-25				3						1						5				3				
Greene 5/12-18				12						1						4				7				
Greene 5/19-25				4						9									3	5				
Knox 5/12-18				9						6						3				19				
Knox 5/19-25				4						4									5					
Madison 5/12-18				12						2						5								
TEXAS																								
Brownsville 5/22-27			6BL				25		286	175	94			6741			39	13	11	1		57		
Waco 5/23-29				49			5		104	50				24		383	207			737		29		
UTAH																								
Logan 5/22			BL		3																			
WISCONSIN																								
Platteville 5/20			BL	9												14				92				
Mazomanie 5/21-27			BL	10												16				7				
Madison 5/20-25	38-88		BL	16												19				116				
Madison 5/21-27	47-88		BL		15																			
Middleton 5/23-25			BL		4																			
Middleton 5/21-27			BL	9												5				57				
WYOMING																								
Cheyenne 5/6-12						69										7								

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Alfalfa (Commodity or Crop)

A. Pest or pest complex: Alfalfa weevil, army cutworm, pea aphid, spotted alfalfa aphid, alfalfa webworm, alfalfa caterpillar, pea aphid and Lygus bugs.

B.	Number of acres[a] produced (From CRS)	No.	829,000
C.	Average yield per acre[a] (From CRS)	Units/	2 tons
D.	Price[b] per unit (ton)[c] (From CRS)	$/	20.00
E.	Acres[a] needing control	No.	413,331
F.	Acres[a] treated	No.	293,275
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	4.9
I.	Loss in yield, units per acre[a], C x H	Units/	.089 tons
J.	Loss in yield, $ per acre[a], D x I	$/	1.96
K.	Loss in quality, $ per acre[a]	$/	.04
L.	Yield loss for all acres[a], (E-F) x I	Units	11,766.37 tons
M.	Control cost, $ per acre[a],	$/	2.00
N.	Control cost for all acres[a], F x M	$	586,550.00
O.	Yield loss for all acres[a], (E-F) x J	$	235,309.76
P.	Quality loss for all acres[a], (E-F) x K	$	4,802.24
Q.	Combined control cost and losses, N + O + P	$	826,662.00

R. Percent loss due to each insect in the complex:

Comment: Loss was primarily due to alfalfa weevil in northeastern Colorado.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Corn (Commodity or Crop)

A. Pest or pest complex: Two-spotted spider mite, western corn rootworm, corn earworm, corn leaf aphid, fall armyworm.

B.	Number of acres[a] produced (From CRS)	No.	480,000
C.	Average yield per acre[a] (From CRS)	Units/	75.3 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.19
E.	Acres[a] needing control	No.	307,800
F.	Acres[a] treated	No.	209,278
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	2.8
I.	Loss in yield, units per acre[a], C x H	Units/	2.1 bu.
J.	Loss in yield, $ per acre[a], D x I	$/	2.499
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	206,896.2 bu.
M.	Control cost, $ per acre[a],	$/	2.50
N.	Control cost for all acres[a], F x M	$	523,195.00
O.	Yield loss for all acres[a], (E-F) x J	$	246,206.48
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	769,401.48

R. Percent loss due to each insect in the complex:

Comment: Loss in southeastern Colorado was high due to fall armyworm, two-spotted spider mite, and late in the season the corn earworm.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Beans (dry) (Commodity or Crop)

A. Pest or pest complex: Mexican bean beetle, two-spotted spider mite, thrips, grasshoppers.

B.	Number of acres[a] produced (From CRS)	No.	200,000
C.	Average yield per acre[a] (From CRS)	Units/	8.8 cwt.
D.	Price[b] per unit (cwt.)[c] (From CRS)	$/	6.00
E.	Acres[a] needing control	No.	34,479
F.	Acres[a] treated	No.	15,814
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	.48
I.	Loss in yield, units per acre[a], C x H	Units/	.042 cwt.
J.	Loss in yield, $ per acre[a], D x I	$/	.25
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	783.93 cwt.
M.	Control cost, $ per acre[a],	$/	3.00
N.	Control cost for all acres[a], F x M	$	47,442.00
O.	Yield loss for all acres[a], (E-F) x J	$	4,666.25
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	52,108.25

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Sugar Beets (Commodity or Crop)

A. Pest or pest complex: Beet webworm, sugar-beet root maggot, beet leafhopper, garden symphylan, nematodes.

B.	Number of acre[a] produced (From CRS)	No.	190,000
C.	Average yield per acre[a] (From CRS)	Units/	17.7 ton
D.	Price[b] per unit (ton)[c] (From CRS)	$/	12.00
E.	Acres[a] needing control	No.	74,915
F.	Acres[a] treated	No.	61,885
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	1.5
I.	Loss in yield, units per acre[a], C x H	Units/	.2655 ton
J.	Loss in yield, $ per acre[a], D x I	$/	3.19
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	3,459.46 ton
M.	Control cost, $ per acre[a],	$/	3.50
N.	Control cost for all acres[a], F x M	$	216,597.50
O.	Yield loss for all acres[a], (E-F) x J	$	41,565.70
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	258,163.20

R. Percent loss due to each insect in the complex:

Comment: Most of the loss was due to the beet leafhopper in western and southeastern Colorado.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Potatoes (Commodity or Crop)

A. Pest or pest complex: Black cutworm, potato aphid, green peach aphid, potato psyllid, tuber and pale-striped flea beetles, Colorado potato beetle.

B.	Number of acres [a] produced (From CRS)	No.	56,000
C.	Average yield per acre [a] (From CRS)	Units/	221.25 cwt.
D.	Price[b] per unit (cwt.)[c] (From CRS)	$/	1.10
E.	Acres [a] needing control	No.	25,349
F.	Acres [a] treated	No.	18,636
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	.2757
I.	Loss in yield, units per acre [a], C x H	Units/	.61 cwt.
J.	Loss in yield, $ per acre [a], D x I	$/	.67
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	4,094.93 cwt.
M.	Control cost, $ per acre [a],	$/	6.00
N.	Control cost for all acres [a], F x M	$	111,816.00
O.	Yield loss for all acres [a], (E-F) x J	$	4,497.71
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	116,313.71

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Tomatoes (Commodity or Crop)

A. Pest or pest complex: Tomato hornworm, tomato fruitworm, tomato psyllid, garden symphylan, beet leafhopper.

B.	Number of acres [a] produced (From CRS)	No.	3,000
C.	Average yield per acre [a] (From CRS)	Units/	13.01 ton
D.	Price[b] per unit (ton)[c] (From CRS)	$/	20.00
E.	Acres [a] needing control	No.	3,000
F.	Acres [a] treated	No.	2,723
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	5.9
I.	Loss in yield, units per acre [a], C x H	Units/	.768 ton
J.	Loss in yield, $ per acre [a], D x I	$/	15.36
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	212.74 ton
M.	Control cost, $ per acre [a],	$/	3.00
N.	Control cost for all acres [a], F x M	$	8,169.00
O.	Yield loss for all acres [a], (E-F) x J	$	4,254.72
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	12,423.72

R. Percent loss due to each insect in the complex:

Comment: Most of the loss occurred late in the fall due to tomato fruitworm.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Lettuce (Commodity or Crop)

A. Pest or pest complex: Cabbage looper, garden webworm, beet webworm

B.	Number of acres[a] produced (From CRS)	No.	6,300
C.	Average yield per acre[a] (From CRS)	Units/	200 carton
D.	Price[b] per unit (ctn.)[c] (From CRS)	$/	1.75
E.	Acres[a] needing control	No.	6,300
F.	Acres[a] treated	No.	6,300
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	1.
I.	Loss in yield, units per acre[a], C x H	Units/	2 ctn.
J.	Loss in yield, $ per acre[a], D x I	$/	3.50
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	12,727.27 ctn.
M.	Control cost, $ per acre[a],	$/	9.00
N.	Control cost for all acres[a], F x M	$	56,700.00
O.	Yield loss for all acres[a], (E-F) x J	$	-----
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	56,700.00

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Cabbage (Commodity or Crop)

A. Pest or pest complex: Cabbage looper, imported cabbageworm, garden webworm.

B.	Number of acres[a] produced (From CRS)	No.	2,400
C.	Average yield per acre[a] (From CRS)	Units/	200 cwt.
D.	Price[b] per unit (cwt.)[c] (From CRS)	$/	1.00
E.	Acres[a] needing control	No.	2,400
F.	Acres[a] treated	No.	2,200
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	1.84
I.	Loss in yield, units per acre[a], C x H	Units/	3.68 cwt.
J.	Loss in yield, $ per acre[a], D x I	$/	3.68
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	736 cwt.
M.	Control cost, $ per acre[a],	$/	6.00
N.	Control cost for all acres[a], F x M	$	13,200.00
O.	Yield loss for all acres[a], (E-F) x J	$	736.00
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	13,936.00

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Onions (Commodity or Crop)

A. Pest or pest complex: Onion maggot, onion thrips

B.	Number of acres [a] produced (From CRS)	No.	8,000
C.	Average yield per acre [a] (From CRS)	Units/	241.7 cwt.
D.	Price[b] per unit (cwt.)[c] (From CRS)	$/	2.50
E.	Acres [a] needing control	No.	8,000
F.	Acres [a] treated	No.	6,609
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	4.92
I.	Loss in yield, units per acre [a], C x H	Units/	11.89 cwt.
J.	Loss in yield, $ per acre [a], D x I	$/	29.72
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	16,538.99 cwt.
M.	Control cost, $ per acre [a],	$/	4.00
N.	Control cost for all acres [a], F x M	$	26,436.00
O.	Yield loss for all acres [a], (E-F) x J	$	41,340.52
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	67,776.52

R. Percent loss due to each insect in the complex:

Comment: The onion maggot caused most of the loss in Colorado.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Peaches (Commodity or Crop)

A. Pest or pest complex: Peach twig borer, green peach aphid, two-spotted spider mite, peach silver mite, crown borer.

B.	Number of acres [a] produced (From CRS)	No.	1,200
C.	Average yield per acre [a] (From CRS)	Units/	164.4 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	3.00
E.	Acres [a] needing control	No.	1,200
F.	Acres [a] treated	No.	1,010
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	9.9
I.	Loss in yield, units per acre [a], C x H	Units/	16.28 bu.
J.	Loss in yield, $ per acre [a], D x I	$/	48.84
K.	Loss in quality, $ per acre [a]	$/	-----
L.	Yield loss for all acres [a], (E-F) x I	Units	3,093.20 bu.
M.	Control cost, $ per acre [a],	$/	12.00
N.	Control cost for all acres [a], F x M	$	12,120.00
O.	Yield loss for all acres [a], (E-F) x J	$	9,279.60
P.	Quality loss for all acres [a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	21,399.60

R. Percent loss due to each insect in the complex:

Comment: The peach twig borer caused a major portion of the loss; 5,140 acres did not produce because of severe damage due to frost.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Colorado (State or District) DURING 1963 (Year)

ATTACKING Apples (Commodity or Crop)

A. Pest or pest complex: Codling moth, woolly apple aphid, apple grain aphid, two-spotted spider mite.

B.	Number of acres[a] produced (From CRS)	No.	4,510
C.	Average yield per acre[a] (From CRS)	Units/	347.5 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	1.50
E.	Acres[a] needing control	No.	4,510
F.	Acres[a] treated	No.	4,450
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	6.2
I.	Loss in yield, units per acre[a], C x H	Units/	21.54 bu.
J.	Loss in yield, $ per acre[a], D x I	$/	32.31
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	1,292.4 bu.
M.	Control cost, $ per acre[a],	$/	12.00
N.	Control cost for all acres[a], F x M	$	53,400.00
O.	Yield loss for all acres[a], (E-F) x J	$	1,938.60
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	55,338.60

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

ATTACKING Pears (Commodity or Crop)

A. Pest or pest complex: Codling moth, two-spotted spider mite, pear leaf blister mite.

B.	Number of acres[a] produced (From CRS)	No.	675
C.	Average yield per acre[a] (From CRS)	Units/	188.8 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/	2.00
E.	Acres[a] needing control	No.	675
F.	Acres[a] treated	No.	625
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	5.14
I.	Loss in yield, units per acre[a], C x H	Units/	9.70 bu.
J.	Loss in yield, $ per acre[a], D x I	$/	19.40
K.	Loss in quality, $ per acre[a]	$/	-----
L.	Yield loss for all acres[a], (E-F) x I	Units	485 bu.
M.	Control cost, $ per acre[a],	$/	12.00
N.	Control cost for all acres[a], F x M	$	7,500.00
O.	Yield loss for all acres[a], (E-F) x J	$	970.00
P.	Quality loss for all acres[a], (E-F) x K	$	-----
Q.	Combined control cost and losses, N + O + P	$	8,470.00

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by L. E. Jenkins

Date January 23, 1964

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

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U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 24 June 12, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 June 12, 1964 Number 24

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER populations becoming threatening in many areas of Oklahoma; nymphs of cropland species present in Great Plains and Lake States, and hatching started earlier than usual in Idaho. (pp. 601, 602). ARMYWORM outbreak continues in several States. Infested area delimited in Kansas, and larvae approaching economic concentrations in northwest Indiana and numerous in spotted fields of small grains in Allegan and Van Buren Counties, Michigan. BLACK CUTWORM damaged more than 50 acres of corn in each of 30 Iowa counties and a serious problem exists in several areas of Wisconsin. Damage to corn by black cutworm and/or other species of cutworms also reported in a number of other States. (p. 602). SOUTHWESTERN CORN BORER heavy in many Mississippi Counties. (p. 603). MEADOW SPITTLEBUG populations in Wabasha, Winona and Houston Counties, Minnesota, higher than ever reported in State. (p. 607). VARIEGATED CUTWORM causing some damage in eastern Kansas. (p. 608).

EUROPEAN RED MITE activity on increase; heavy infestations reported in several Eastern and Midwestern States on apple trees. (p. 609). GREEN PEACH APHID remains extremely light on peaches in Mesa County, Colorado, (lowest population in several years) and much less abundant in southern Utah peach orchards than in 1963. (p. 611). PECAN NUT CASEBEARER caused serious damage in untreated pecan orchards throughout Louisiana. (p. 612).

Controls applied for BEET LEAFHOPPER in most fields of sugar beets in Mesa County, Colorado. (p. 615).

BOLL WEEVIL appeared in many Coastal Plain areas of South Carolina, and out in numbers in delta area of Mississippi following rain. Activity continues light in central Texas. (p. 617).

CANKERWORMS continue active from Connecticut to North Dakota, but most damage complete. (p. 619). GREAT BASIN TENT CATERPILLAR continues to defoliate trees and shrubs in sections of Utah. BAGWORM activity increasing in Oklahoma. (p. 620). PERIODICAL CICADAS emerging in sections of Missouri, Kansas and Oklahoma. (p. 611, 622).

HORN FLY moderate to heavy in most areas of Oklahoma and in several areas of Louisiana. LONE STAR TICK at highest population level reported in several years in McCurtain County, Oklahoma, and WOOD TICKS reported very numerous in many Montana Counties. (p. 626).

DETECTION

New State records for Hawaii were a FALSE CHINCH BUG (Nysius caledoniae) and an ARMORED SCALE (Aspidiotus selangorensis). Locality records established for an ARMORED SCALE (Aspidiotus herculeanus), an ANTHRIBID BEETLE (Araecorynus cumingi) and a NITIDULID BEETLE (Carpophilus marginellus). BEET LEAFHOPPER (Circulifer tenellus) also found for first time on Island of Hawaii. (pp. 629, 630). New County records reported were CEREAL LEAF BEETLE (Oulema melanopa) in Paulding and Hancock Counties, Ohio, and Lenawee County, Michigan (p. 604); ALFALFA WEEVIL (Hypera postica) in Windsor and Rutland Counties, Vermont, and Marion, Madison, Champaign and Logan Counties, Ohio (p. 606); PALES WEEVIL (Hylobius pales) in Jennings County, Indiana (p. 623); and IMPORTED FIRE ANT (Solenopsis saevissima richteri) in Sarasota County, Florida (p. 628).

ADDITIONAL NOTES

See pages 630 and 631.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 625).

Hawaiian Insect Notes. (p. 629, 630).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Cotton and Alfalfa Hay in New Mexico During 1963. (p. 634).

WEATHER BUREAU'S 30-DAY OUTLOOK

JUNE 1964

The Weather Bureau's 30-day outlook for June calls for temperatures to average below seasonal normals east of the Continental Divide with most unseasonable coolness in the South. Above normal averages are predicted west of the Divide except for near normal in the extreme northwest and the Southern Plateau. This temperature pattern represents a reversal of that observed during May. Above normal rainfall is expected over the Central and Southern Plains, the Gulf States, and the Middle and South Atlantic States. Subnormal rainfall is predicted for the upper Mississippi Valley and the upper Great Lakes, as well as over the Western Plateau and the Pacific Coast. Near normal amounts are anticipated in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING JUNE 8

Major sections of the Nation, except the southwest quarter, received beneficial showers during the period and cool temperatures dominated from the Plains States eastward.

TEMPERATURE: Though summertime heat began to return during the weekend, daily temperatures had been cool enough to keep averages deficient 6° or more over large sections from the Great Plains eastward. Albany, New York, lacked 14° of being normal. Presidio, Texas, heated to 108° and 109° on the 6th and 7th, respectively, for the Country's highest reported temperatures. Northern and central areas of the Far West recorded the only significant above normal averages, but cooler air had moved into these areas over the weekend. White frost was observed every day in northern Wisconsin and record minima occurred at many stations over the eastern half of the Nation. Below freezing temperatures on 3 days caused damage in New England and froze ponds in New York on the 5th. New record minima for June were recorded at Stations in Kansas, Missouri, and Louisiana.

(Weather continued on page 631).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - INDIANA - Second and third instars averaged 7 per 10 sweeps on alfalfa in Posey County, southwest. (Everly). ILLINOIS - Melanoplus spp. varied 0-40 per 100 sweeps in grass in east district. (Ill. Ins. Rpt.). IOWA - Newly hatched grasshoppers, probably M. differentialis, ranged 1-5 per square yard in short pastures in central area. (Iowa Ins. Inf., June 1). WISCONSIN - Second to fourth instars of M. femurrubrum and M. differentialis averaged about 60 per sweep near margin of alfalfafield in Green County. Hatching still underway in most fields. (Wis. Ins. Sur.). MINNESOTA - Hatch of M. bivittatus and M. sanguinipes well underway in southeast district; counts 20 per square yard in Rice County alfalfafield. Alfalfa being cut in southern area; this will accelerate development of M. femurrubrum which is presently mostly in early eye spot stage. (Minn. Ins. Rpt.). NORTH DAKOTA - Nymphal survey in Wells, Pierce, Bottineau, McHenry and Sheridan Counties showed marginal infestations from less than 1 to 25 per square yard (averaged about 1-6). Field counts ranged from less than 1 to 9 per square yard (averaged 1-3). Highest field counts in old grain stubble and soil bank land. Nymphal development ranged from first through fourth stages; most in second and third nymphal stages. M. bivittatus, M. sanguinipes, M. packardii and Camnula pellucida dominant species. (Brandvik, Scholl, Gage). NEBRASKA - M. bivittatus and M. sanguinipes ranged 3-5 per square yard in alfalfa and along roadsides in Dawson County. (Bergman). WYOMING - Cordillacris occipitalis and Aulocara elliotti mainly in second and third instars on rangeland in Platte County. Ageneotettix deorum mainly in first instar. Trachyrachys kiowa, C. crenulata and Phlibostroma quadrimaculatum just beginning to hatch in same area. (Pfadt). Hatching rangeland grasshoppers in heavy numbers being reported throughout eastern area. State and Federal personnel checked infestations totaling over 100,000 acres in Platte, Goshen, Albany, Campbell, Crook, Johnson and Weston Counties; A. elliotti, C. occipitalis, Amphitornus coloradus, M. confusus and M. occidentalis compose bulk of infestations. Most nymphs still in first stage. (Thornley). COLORADO - Surveys indicate partial hatch, but populations apparently extremely low. In lower areas of Heurfano, Fremont and El Paso Counties, first instars of Melanoplus spp. and second instars of Amphitornus coloradus and Aulocara elliotti observed. In higher foothill areas of Huerfano and Fremont Counties, third instars of Melanoplus spp. found, as well as overwintering Eritettix simplex tricarinatus, at rate of 2 per square yard in El Paso County. In Elbert County, 28 stops made and few first instars of Melanoplus spp., Arphia spp. and Xanthippus spp. observed. (Watson). OKLAHOMA - Nymphal populations of several species approaching "threatening" stage on approximately 30,000 contiguous acres of rangeland in northwest Carter and western Murray Counties, south central area; averaged 8-15 per square yard; dominant species M. bivittatus, Ageneotettix deorum, Boopedon nubilum, M. sanquinipes and Mermiria maculipennis, with development second instar to adult. Crop margins infested mostly with M. bivittatus and M. sanguinipes; 4-8 per square yard. Light to moderate infestations present in alfalfa and range areas in Cleveland (central) and Choctaw (southwest) Counties. Moderate to heavy infestations reported in rangeland in Major County, northwest area. (Okla. Coop. Sur.). NEW MEXICO - First and second instars of Aulocara elliotti, M. occidentalis and Cordillacris occipitalis averaged 9 per square yard in Quay County along Canadian River northeast of Tucumcari and south of Melrose in Curry and Roosevelt Counties. Nymphal populations also reported in cultivated areas along Rio Grande in Valencia, Bernalillo, Sandoval, Santa Fe and Rio Arriba Counties. Counts averaged 10-15 per 25 sweeps in Espanola Valley alfalfa fields. (N.M. Coop. Rpt.). NEVADA - Counts of first to third-stage nymphs varied 1-15 per square yard in many areas of Paradise Valley, Humboldt County. Counts made under poor weather conditions and infestations probably higher. Dominant species Aulocara elliotti, Camnula pellucida, Oedaleonotus enigma and M. sanguinipes. (Gallaway). IDAHO - Hatching of numerous grasshopper species started earlier than usual; development during week of May 10-16 being approximately same as that of June 5 in 1963. Populations up to 50 per square yard found in some desert range areas. In Dietrick, Owinza, Kimania areas, numbered 10 per square yard with first through third instars predominant. Averaged 35-50 per square yard in Indian Cover area, 15-25 per square yard in Notch Butte area of

Elmore County and 25-150 per square yard in Arrow Rock Dam area. A late spring, which kept grasshopper eggs from hatching, followed by subsequent warm weather is apparently contributing to high survival of nymphs now appearing. (Evans).

ARMYWORM (Pseudaletia unipuncta) - NEW JERSEY - No reports of damage to small grains received. (Ins.-Dis. Newsltr.). MARYLAND - Light infestation noted in barley in Kent County. (U. Md., Ent. Dept.). MICHIGAN - Larvae numerous in spotted fields of small grains in Allegan and Van Buren Counties; parasitism by a tachinid fly evident. (Janes, Wells, Patterson, Earl). INDIANA - Approaching economic concentrations in La Porte and St. Joseph Counties, northwest. (Wilson). Surveys on wheat in Parke, Sullivan, Owen and Warrick Counties, southwest section, negative. (Bram). ILLINOIS - Varied 0-23 per foot of row in wheat in central and eastern areas. Majority of larvae full grown in central areas but still one-half to three-fourths inches long in eastern areas. (Ill. Ins. Rpt.). WISCONSIN - Larvae, ranging from third to fifth instar, fairly common in many larger corn plants in southwestern area. Parasitism or disease not observed. (Wis. Ins. Sur.). MINNESOTA - Few larvae found in lush roadside grass in Houston, Fillmore and Olmsted Counties. None found in small grains. (Minn. Ins. Rpt.). MISSOURI - Light in northern one-third of State. Chemical controls continued throughout central one-third of State. (Houser, Thomas, Wood). KANSAS - Area of heaviest infestation appears to be largely east of U.S. Highway 75 and south of Kansas River. Approximately 5 percent of fields in southeast show damage, while farther north in east central area, 20-30 percent of fields show damage. Fields not showing damage have very few larvae. Practically all infested fields treated. Some parasitism noted. Examination of treated fields indicated larval counts of 15 per foot of row common. (Burkhardt, Peters). OKLAHOMA - Decreasing in Garvin County, south central area. (Okla. Coop. Sur.).

ARMYWORMS - LOUISIANA - Light on sorghum in Tangipahoa Parish; several fields of rice in southwest required treatment. (Newsom, Cancienne, Tynes; June 1).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Counts generally less than 1 larva per 100 feet of row in eastern area. (Burkhardt, Peters).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - GEORGIA - Heavy infestation in whorls of corn in Crisp County. (Nix).

BLACK CUTWORM (Agrotis ipsilon) - MARYLAND - Cutworms, probably this species, damaging seedling corn in Kent and Queen Annes Counties. (U. Md., Ent. Dept.). ILLINOIS - Cutworms, mainly this species, cutting 0-14 (average 2.1) percent of corn plants in northeast and east districts. (Ill. Ins. Rpt.). WISCONSIN - Reports indicate a serious problem exists in several areas of State. Most problems seem to be confined to individual scattered fields, particularly those planted on sod. Some controls underway in Sauk County. Reports also indicate particular problems in Dodge, Dunn, Iowa, Racine, Green, Shawano and Ashland Counties. In Walworth County, serious damage found in soybeans. (Wis. Ins. Sur.). IOWA - Damaged more than 50 acres of corn in each of 30 counties over State. Corn cut off 1-6 inches high. Regarded as most widespread outbreak seen in Worth County. (Iowa Ins. Inf., June 1). SOUTH DAKOTA - Causing spotted damage to corn in Moody and Hutchinson Counties. (Walstrom). KANSAS - About 60 percent of plants damaged in field of corn in Riley County, northeast. (Kaufmann). MISSOURI - This species and Feltia subgothica continue to damage corn in northwest section; 90 percent of larvae fully developed and near pupation. Peak of damage past. (Houser, Thomas, Wood).

CUTWORMS (undetermined) - MICHIGAN - Larvae causing serious injury to corn in several southern and central Lower Peninsula counties. (Janes, Lincoln, Wells, Rowe, Sowerby). MINNESOTA - Damage found in corn in Wabasha, Olmsted, Dakota, Martin and Redwood Counties, up to 90 percent of sweet corn damaged at Rochester; large scale replanting necessary. (Minn. Ins. Rpt.). OKLAHOMA - Several species light to moderate on alfalfa in Mayes (northeast), Cleveland (central) and Comanche (southwest) Counties. (Okla. Coop. Sur.). NEVADA - Heavy in lawns and home gardens in Caliente, Lincoln County. (Munk).

CORN EARWORM (Heliothis zea) - MARYLAND - Small number of moths collected at Centreville light trap intermittently since May 24. First moths collected at Berlin, Worcester County, on June 4. (U. Md., Ent. Dept.). GEORGIA - Light to moderate in whorls of corn in south central and southwest areas. (Morgan, Johnson). ALABAMA - Bud infestation on 100 percent locally in Geneva County cornfield. Larvae extremely heavy in field of caley peas in Montgomery County where controls applied. (Reynolds, McCay). LOUISIANA - Light on clover in St. Landry Parish. Feeding on tassels of sweet corn in East Baton Rouge Parish. Present in field of seed corn in East Carroll Parish; treatment applied. (Newsom, Cancienne, Tynes, June 1). ARKANSAS - Averaged 21 per 100 sweeps in wheat in University of Arkansas farm in Washington County, northwest, on May 29. Observed in large numbers in sweet corn in Crawford County; nearly 100 percent of stalks infested with 1 to as high as 6-7 larvae per stalk. Feeding primarily in whorls and on emerging tassels. Larvae second to fourth stages. Infestations noneconomic on this stage of corn. (Ark. Ins. Sur.). OKLAHOMA - Moderate, 10 per 100 linear feet, reported in Choctaw County. (Okla. Coop. Sur.). KANSAS - Small larvae observed in some alfalfa in eastern area. "Ragging" corn in Douglas County, east central area. (Burkhardt, Peters).

EUROPEAN CORN BORER (Ostrinia nubilalis) - IOWA - Development at Ankeny 88 percent pupation and 12 percent emergence on May 29. (Iowa Ins. Inf.). NEW YORK - Egg masses found on sweet corn in early whorl stage May 28 in Hudson Valley; 5 per 150 plants. Treatments for North star in Ulster County should be applied by June 3. Populations advanced relative to corn and calendar. (N.Y. Wkly. Rpt.). CONNECTICUT - Some activity noted. (Savos). MASSACHUSETTS - Few moths observed but no egg masses present June 1-6. (Wave). NEW JERSEY - Eggs starting to hatch on sweet corn. In general, populations low and cool night temperatures unfavorable for moth flight. (Ins.-Dis. Newsltr.). INDIANA - Averaged 2 unhatched egg masses per plant on 36-inch sweet corn in Vanderburgh County, southwest section, on May 30. (Everly). Four percent of early planted field corn possessed egg masses and 2 percent of plants showed whorl feeding in Knox County, southwest section, on May 29. (Matthew). WISCONSIN - Males and females continue rather common in oat fields in southwest. No egg masses found. (Wis. Ins. Sur.). MINNESOTA - Moth emergence started in southeast district; 13 percent emerged and 87 percent pupae. Moths collected in nearly all sweeps in small grain and alfalfa. (Minn. Ins. Rpt.). KANSAS - Egg masses noted on corn in Douglas County, east central; "pinhole" damage and small larvae in plants also observed. (Burkhardt, Peters).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - LOUISIANA - Present in field of seed corn in East Carroll Parish; treatment applied. (Newsom, Cancienne, Tynes; June 1). MISSISSIPPI - Heavy infestations found in many counties. Late corn and smaller acreage contributed to high populations in many corn fields. (Young, Bennett; June 2).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Moderate infestation on field corn in Coffee County. (Keene).

STALK BORER (Papaipema nebris) - DELAWARE - First young larvae of season found on corn in area of Sussex County. (McCreary).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Generally light to moderate throughout sugarcane area. Light on sweet corn in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

CORN ROOT WEBWORM (Crambus caliginosellus) - VIRGINIA - Severely infesting, along with cutworms, field of corn in Tazewell, Tazewell County. (Tarpley, McDonald; May 26). Severely infesting, along with cutworms, 2 fields of corn in Hillsville, Carroll County. (Tarpley, Tabor; May 22). Two fields of corn, average 15 acres each, practically destroyed in lower end of Montgomery County; less than 2 percent of stand remaining in one field (also heavily infested with cutworms) and about 50 percent of stand left in other field. (Tarpley, Neel; June 1). In all instances thus far in which C. caliginosellus has caused serious damage,

fields of corn followed some crop, usually pasture, other than corn. (Tarpley). OHIO - Larvae infesting corn near Tiffin, Seneca County, north central section. (Gamble, Holdsworth).

SOD WEBWORMS - IOWA - Attacked corn in Shelby and Marshall Counties. (Iowa Ins. Inf., June 1). INDIANA - Crambus sp. causing up to 25 percent loss of stand where corn followed sod in Porter and Clinton Counties. (Gould). OHIO - Crambus sp. damaged 25 percent of plants in cornfield in Hancock County, northwest. (Freeman, Blair). MARYLAND - Crambus sp. causing heavy damage to seedling corn planted after sod in Kent and Queen Annes Counties; one field about 60 percent killed. (U. Md., Ent. Dept.). PENNSYLVANIA - Unspecified species caused severe damage to lawn in Somerset County. (Udine).

CEREAL LEAF BEETLE (Oulema melanopa) - OHIO - Collected in Paulding and Hancock Counties for first time. Survey personnel collected specimens from Clinton, Squaw Creek and Gorham Townships of Fulton County; Providence Township of Lucas County; Liberty Township of Henry County; Highland, Delaware and Noble Townships of Defiance County; Jackson, Eagle and Amanda Townships of Hancock County; and Paulding and Jackson Townships of Paulding County. Primarily adults found in both wheat and oat fields. The new spread has necessitated additions to regulated area. Entire counties of Defiance, Fulton, Paulding and Williams now regulated. Townships regulated include Monroe, Both and Sugar Creek of Allen County; Amanda, Delaware, Eagle and Jackson of Hancock County; Damascus, Freedom, Harrison, Liberty, Napoleon, Ridgeville and Washington of Henry County; Cities of Maumee, Sylvania and Toledo with Townships of Adams, Harding, Monclova, Providence, Richfield, Spencer, Springfield, Swanton, Sylvania, Washington and Waterville of Lucas County; and Grand Rapids and Washington of Wood County. A proposed revision of the quarantine would extend the quarantine from 14 northwestern counties now involved to include all 88 counties of the State. (Stackhouse, Porter). MICHIGAN - Lenawee County second new county found infested in 1964; found in Dover and Macon Townships. Additional townships found infested in known infested counties are: Sunfield, Roxand, Oneida, Delta, Chester, Benton and Windsor in Eaton County; Somerset in Hillsdale County; Odessa, Orange, Keene, Portland, Berlin, Sebewa, Danby and Easton in Ionia County; Gaines, Byron, Bowne, Paris, Caledonia, Cascade, Ada, Algoma and Oakfield in Kent County; and Crockery and Robinson in Ottawa County. An effort is being made to delimit spread. "Summer" adults expected soon; number of larvae reached prepupal stage. Eggs predominantly in oats. All stages of development (eggs, larvae, pupae and "old" adults) present. (Lovitt, Turner, Castro, Ruppel). INDIANA - In La Porte and St. Joseph Counties, oviposition continues but peak activity past. Estimated 80 percent hatch; 10 percent first instar, 55 percent second and third instars, 25 percent near full-grown fourth instar and 10 percent pupated. Populations on oats ranged as high as 4.1 larvae per stem, or approximately 100-150 per square foot. (Wilson). ILLINOIS - None found in wheat, oats or grass in east or northeast districts. (Ill. Ins. Rpt.). WISCONSIN - Detection survey presently underway in lakeshore and southeastern counties. (Wis. Ins. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Averaged 2-3 per plant in field of corn in Audrain County, east central; damage light. (Houser, Thomas, Wood).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - GEORGIA - Adults feeding on silk and pollen of corn in Early County. (Morgan).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Adults active in rice fields in southwest. (Newsom, Cancienne, Tynes; June 1).

BILLBUGS - VIRGINIA - Sphenophorus callosus caused light damage to field of corn by feeding on seedlings below surface of soil locally in Brunswick County. (Tarpley, Maclin; May 21). INDIANA - Sphenophorus sp. damaged corn seedlings in three 20-acre fields in Boone County, central area. Fields had been in sod during 1963 and 20 percent of plants showed feeding damage. (Matthew). ILLINOIS - Sphenophorus sp. causing light damage (0-3 percent of plants) to corn in east and northeast districts. (Ill. Ins. Rpt.).

WIREWORMS - OHIO - Approximately 200 acres of field corn had to be replanted in Preble County; greatest wireworm problem yet to occur in county. (Petteys, May 26). Replanting of 10 acres of corn required in Seneca County. (Gamble). Melanotus communis observed infesting corn plants in Meigs County, southeast section. (Blakeslee, Holdsworth). INDIANA - Wireworms, probably Limonius dubitans, infesting 35 acres of corn in Porter County, northwest section, with losses ranging 25-100 percent. Also scattered reports from Carroll and White Counties. (Gould). IOWA - Unspecified species reported in first-year corn following sod in Story, Wayne, Buchanan and Pocahontas Counties. (Iowa Ins. Inf., June 1). NORTH DAKOTA - Unspecified species reported damaging small grains in Scranton area, Bowman County. (Bissonnette).

ENGLISH GRAIN APHID (Macrosiphum avenae) - INDIANA - Adults and nymphs ranged 6-25 per 10 sweeps on wheat and oats in southwest section. (Bram). ILLINOIS - Varied 0-160 per 100 sweeps in wheat and 0-80 per 100 sweeps in oats in east and northeast districts. (Ill. Ins. Rpt.). WISCONSIN - Increased noticeably in oats in southern area; as high as 20 per sweep with colonies 5-6 per leaf. Winged forms and those containing wing pads noticeable. Parasitism evident in most fields more heavily infested. (Wis. Ins. Sur.). MINNESOTA - Generally low in west central, northwest and southeast districts. (Minn. Ins. Rpt.). MISSOURI - Ranged 0-2 per head in wheat in northeast; stem mothers producing young on oats in same area but infestation light. (Houser, Thomas, Wood).

GREENBUG (Schizaphis graminum) - ILLINOIS - Varied 0-20 per 100 sweeps in wheat in east and northeast districts; none observed in oats. (Ill. Ins. Rpt.). WISCONSIN - Increase noted, but not as pronounced as English grain aphid; averaged about 2-3 per 25 sweeps. (Wis. Ins. Sur.). MINNESOTA - Present in small grain in southeast district; not found in all fields. (Minn. Ins. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy in grain sorghum in Ottawa County, northeast. Also, light on corn in Choctaw County, southeast. (Okla. Coop. Sur.).

GROUND PEARLS - GEORGIA - Females found for first time this year. (Beck).

CHINCH BUG (Blissus leucopterus) - LOUISIANA - Caused heavy damage to 0.5-acre of rice in Ascension Parish. Populations building up rapidly in southern lawns. (Newsom, Cancienne, Tynes; June 1).

FALSE CHINCH BUG (Nysius ericae) - NEW MEXICO - False chinch bugs reported in CEIR 14(22):535 on barley identified as this species. (N.M. Coop. Rpt.).

A SHARPSHOOTER LEAFHOPPER - LOUISIANA - Moderate on rice in Acadia Parish. (Newsom, Cancienne, Tynes; June 1).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - INDIANA - Adults unusually abundant on oats in La Porte and St. Joseph Counties, northwest section. (Wilson). MINNESOTA - Range per 100 sweeps on alfalfa and small grains 20-600 in southeast, 10-80 in west central and 10-400 in northwest. (Minn. Ins. Rpt.).

A SPITTLEBUG (Prosapia bicincta) - GEORGIA - First adults of season on coastal Bermuda grass in Tift and Brooks Counties. (Byers). FLORIDA - Scattered on roots of centipede grass at Crestview, Okaloosa County. (Albritton, May 25).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - MASSACHUSETTS - Adults abundant and laying eggs in some fields in Springfield area on June 5. Only a few eggs hatched. (Wave).

FRIT FLY (Oscinella frit) - CONNECTICUT - Reported on reed Canary grass at Storrs, Tolland County. (Savos).

BANKS GRASS MITE (Oligonychus pratensis) - CALIFORNIA - Heavy on intermediate wheatgrass in Susanville area, Lassen County. (Cal. Coop. Rpt.). WASHINGTON - Causing severe damage to field of crested wheatgrass along Snake River, Garfield County. (Brannon).

BROWN WHEAT MITE (Petrobia latens) - WYOMING - Adults and nymphs ranged 20-250 (averaged 70) per linear foot of row in wheat in Goshen County. (Marks).

SPIDER MITES (Tetranychus spp.) - ARIZONA - Populations continue moderate to heavy in Yuma County alfalfa. (Ariz. Coop. Sur.).

WHEAT CURL MITE (Aceria tulipae) - COLORADO - Traces, associated with wheat streak mosaic, reported on wheat in eastern area. (Somsen, Briongs).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - NEVADA - Heavy population with heavy damage to red clover in Smith Valley, Lyon County. (Batchelder).

ALFALFA WEEVIL (Hypera postica) - VERMONT - Larvae causing severe damage on alfalfa stands in southern Bennington County. All instars collected May 26; ranged 5-20 per sweep. Recorded for first time in Rutland County in vicinity of Wells and Pawlet and in Windsor County in vicinity of Springfield. (MacCollom), June 1). First ARS records for Windsor and Rutland Counties. NEW YORK - Records to date show following counties to be infested: Washington, Rensselaer, Columbia, Dutchess, Putnam, Westchester, Nassau, Suffolk, Rockland, Orange, Sullivan, Ulster, Greene, Albany, Schoharie, Schenectady, Saratoga, Delaware, Otsego, Broome, Steuben and Fulton. (N.Y. Wkly. Rpt.). MARYLAND - Weevils retarding new growth of alfalfa in parts of Kent County and in central area of State. (U. Md., Ent. Dept.). VIRGINIA - Damage noticeable in second-cutting alfalfa in lower part of Montgomery County and in Smyth and Wythe Counties. (Tarpley). Causing damage to second-cutting alfalfa in several fields in Franklin County; few larvae observed but adults common. (Tucker). Counts per 10 sweeps 180 larvae and 60 adults in field of uncut alfalfa near Steeles Tavern. Larvae 110 per 100 sweeps in treated field of alfalfa with considerable regrowth nearby. (Woodside). OHIO - Four new counties, namely Marion, Madison, Champaign and Logan found infested for first time. Larvae taken from alfalfa but no actual damage observed. (Holdsworth). Seventy-five percent of alfalfa plants infested in 100-acre field in Muskingum County, east central area. (Knotts). INDIANA - Surveys on alfalfa in Sullivan, Knox and Warrick Counties, southwest section, and Tippecanoe County, west central section, negative. (Bram). ILLINOIS - Larvae varied 0-40 and adults 0-10 per 100 sweeps in southern area. (Dysart). NEBRASKA - Larvae ranged 28-147 per 100 sweeps in Keith County and 3 per 150 sweeps in Logan County. (Manglitz). Adults averaged 32 and larvae 210 per 100 sweeps in Morrill and Scotts Bluff Counties. (Hagen). COLORADO - Larvae being collected from Ault south to Platteville in Weld County. Counts per 100 sweeps 12-100 in untreated fields and 50-100 in treated fields. (Urano). NEW MEXICO - Damaging alfalfa in fields near Alcalde, Rio Arriba County; averaged 3 adults and 40+ larvae per 25 sweeps. (N.M. Coop. Rpt.). NEVADA - First and second-stage larvae averaged 3-5 per sweep and adults 1-3 per sweep in Ursine, Lincoln County. Larvae 5-17 per sweep in Panaca, Lincoln County, with some adults present. (Bechtel, Zoller). UTAH - Larval damage increased moderately, more conspicuous in an area near Ogden, Weber County. Cool weather continues to retard larval development and activity in northern area. (Knowlton, June 2). Alfalfa being cut in northern area, often in time to avoid serious larval injury. (Knowlton, June 1). WYOMING - Adults ranged 12-40 (averaged 22) per 100 sweeps and larvae ranged 100-425 (averaged 350) per 100 sweeps in Goshen County alfalfa. (Marks).

A WEEVIL (Tychius stephensi) - ILLINOIS - Varies 40-80 per 100 sweeps in clover and alfalfa in east district; none observed in northeast district. (Ill. Ins. Rpt.).

A FLEA BEETLE (Systena taeniata) - VIRGINIA - Adults abundant in field of alfalfa in Appomattox County. (Woodside).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - Averaged 1-2 per linear foot in soybeans in northeast and causing light to moderate damage. Causing light damage in north central and northwest areas. (Houser, Thomas, Wood).

A LEAF BEETLE (Colaspis sp.) - LOUISIANA - Moderate on clover in Jefferson Davis Parish. (Newsom, Cancienne, Tynes; June 1).

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) - IDAHO - Larvae causing noticeable damage to field of fall-seeded alfalfa in Arena Valley, Canyon County. (Waters).

BLISTER BEETLES (Epicauta spp.) - NORTH DAKOTA - Adults, predominantly E. fabricii, observed on alfalfa; few E. pennsylvanica adults also seen. Ranged 1-20 per 10 sweeps (averaged about 10). (Brandvik, Scholl, Gage).

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Heavy nymphal populations apparent in many hay fields in Lower Peninsula. (Wells, Newman, Sowerby, Gardner). INDIANA - Adults averaged 3 per sweep on red clover and alfalfa in southwest. (Bram). WISCONSIN - Most alfalfa in southwest have higher than normal populations. Despite high populations, good growing conditions have minimized damage. (Wis. Ins. Sur.). MINNESOTA - Populations in Wabasha, Winona and Houston Counties higher than ever reported in the State. Counts in alfalfa averaged nearly 1 per stem in some fields. Most fields had 0.2-0.4 per stem. (Minn. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing rapidly on alfalfa in Maricopa, Pinal and Yuma Counties; averaged 40-60 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WISCONSIN - Nymphs of plant bugs, primarily this species, far outnumbered all other insects in most alfalfa fields; averaged 8-12 per sweep with as high as 30 per sweep present in Prairie du Chien and Brodhead areas. Adults becoming more common in more advanced areas. (Wis. Ins. Sur.). NEBRASKA - Nymphs and adults averaged 60 per 10 sweeps in Dawson County alfalfa. (Bergman).

RAPID PLANT BUG (Adelphocoris rapidus) - WISCONSIN - Nymphs predominate in few fields with averages of 5-7 per sweep being common. Adults somewhat less common than A. lineolatus. (Wis. Ins. Sur.). MISSOURI - Light on legumes in northern area. (Houser, Thomas, Wood). NEW MEXICO - Averaging 2-7 per 25 sweeps in alfalfa in Los Lunas-Belen area of Valencia County and in Albuquerque area of Bernalillo County. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - LOUISIANA - Heavy on ball clover in West Feliciana Parish. (Newsom, Cancienne, Tynes; June 1). FLORIDA - Adults 98 per 100 sweeps on alfalfa at Gainesville, Alachua County. (Mead). WISCONSIN - Nymphs and adults about 2-3 per sweep. (Wis. Ins. Sur.). NEBRASKA - Averaged 207 per 100 sweeps in Morrill and Scotts Bluff Counties in alfalfa. (Hagen). Nymphs and adults averaged 60 per 10 sweeps in Dawson County alfalfa. (Bergman). MISSOURI - Light on legumes in northern area. (Houser, Thomas, Wood). OKLAHOMA - Heavy, 15 per 10 sweeps, present in alfalfa in Choctaw County, but only light infestations reported from McCurtain County. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Nymphs continue to increase in most alfalfa in Mesilla and Pecos Valleys; averaged 8-30 adults and nymphs per 25 sweeps. (N.M. Coop. Rpt.). NEVADA - Mostly nymphs varied 8-30 per sweep in alfalfa hay fields in Panaca, Lincoln County. (Bechtel, Zoller). WYOMING - Adults ranged 100-250 (averaged 130) per 100 sweeps and nymphs ranged 185-300 (averaged 215) per 100 sweeps in Goshen County alfalfa. (Marks).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - FLORIDA - Adults 16 per 100 sweeps on alfalfa at Gainesville, Alachua County. (Mead).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Adults 35 and nymphs 5 per 100 sweeps on alfalfa at Gainesville, Alachua County. (Mead).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - Adults averaged 2 per sweep on alfalfa in southwest and west central sections. (Bram). WISCONSIN - Adults becoming increasingly more noticeable in marginal areas of alfalfa fields; 3 per sweep not unusual in few fields. (Wis. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - INDIANA - Adults and nymphs ranged 6-23 per sweep on red clover and alfalfa in southwest section. (Bram). ILLINOIS - Continues very light, 0-160 per 100 sweeps, in clover and alfalfa in east and northeast districts. (Ill. Ins. Rpt.). WISCONSIN - Remains low in alfalfa; about 3-8 per sweep. Averaged 40 per sweep in field of early cut alfalfa at Spring Green, but considerable parasitism and parasites evident. (Wis. Ins. Sur.). NORTH DAKOTA - Averaged 15 per 10 sweeps in alfalfa in north central area. (Brandvik, Scholl, Gage). NEBRASKA - Averaged 165 per 100 sweeps on alfalfa in Morrill and Scotts Bluff Counties. (Hagen). Averaged 200 per 10 sweeps on alfalfa in Dawson County. (Bergman). MISSOURI - Light on alfalfa and red clover in northern area. (Houser, Thomas, Wood). OKLAHOMA - Light to moderate infestations reported on alfalfa in Choctaw (southeast), McCurtain (southeast) and Blaine (west central) Counties. (Okla. Coop. Sur.). COLORADO - Counts 50-100 per 100 sweeps on alfalfa in Weld County; not economic. (Urano). NEW MEXICO - Populations of this species and Therioaphis maculata (spotted alfalfa aphid) continue mostly light to moderate in alfalfa statewide, with occasional heavy infestations requiring control in De Baca, Eddy and Chaves Counties. Buildup rapid in number of Dona Ana County alfalfa fields, especially young stands. (N.M. Coop. Rpt.). NEVADA - Only trace numbers present in alfalfa hay fields at Ursine, Lincoln County, and varied 5-20 per sweep in Panaca, Lincoln County. (Bechtel, Zoller). WYOMING - Populations in Goshen County alfalfa remained light; adults and nymphs averaged 200-450 per 100 sweeps. (Marks). WASHINGTON - All stages 9-73 (average 20) per sweep in alfalfa seed fields in Walla Walla area May 27, with most fields recently mowed or being mowed; predominantly first and second instars on alfalfa hay and seed fields in Yakima area June 2, with 24-102 (average 30) per sweep. (Halfhill, Featherston).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Continues to decline in Brodhead area; 8 per sweep, with 15 percent winged and another 15 percent with wing pads. Colonies forming on alfalfa interseeding in oatfield in Brodhead area. Winged forms noted in regrowth alfalfa in Spring Green area and wingless forms recovered in alfalfa near Sauk City. (Wis. Ins. Sur.). OKLAHOMA - Light to moderate, 4-200 per 10 sweeps, on alfalfa in Choctaw and McCurtain Counties (southeast), Garvin County (south central) and Comanche County (southwest). (Okla. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Infestation in alfalfa in eastern area quite variable. Most alfalfa with only trace numbers, but few fields have counts as high as 10-15 larvae per square foot. In heavier infested fields, second cutting growth held back. Insecticides applied in most cases in these fields. Parasitism low. (Burkhardt, Peters).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Occasional larva collected in alfalfa near Albuquerque, Bernalillo County. Adults also noted in many fields in Pecos and Mesilla Valleys. (N.M. Coop. Rpt.).

GARDEN WEBWORM (Loxostege similalis) - ARIZONA - Light in some alfalfa in Graham County; averaged 15 per 100 sweeps. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ILLINOIS - Varied 10-70 (averaged 36) per 100 sweeps in clover and alfalfa in east and northeast districts. (Ill. Ins. Rpt.).

THRIPS - GEORGIA - Light to moderate infestations on peanuts in south central and southwest areas. (Johnson). OKLAHOMA - Heavy, 400 per 10 sweeps, on alfalfa in McCurtain County. (Okla. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - VERMONT - Moths in flight and laying eggs in southern part of State. (MacCollom, June 1). MASSACHUSETTS - Major insect pest at present time on apples and pears; protection needed for next 4 weeks. (Wave). NEW JERSEY - Entries appearing in unsprayed apple orchards. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Entries noted on apples in Adams County May 28. (Asquith). OHIO - Adult emergence from overwintering larvae just about complete in Wooster, Wayne County, northeast. (Forsythe). MICHIGAN - Emergence and activity slowed considerably during late May and early June due to cool night temperatures. No emergence in Kent County cage May 23-31 but 4 moths emerged June 1-3. A split first brood of larvae indicated. (Gilmore, Wooley). MISSOURI - New entries noted in central area; larvae more than one-half grown indicates brood interrupted and possibility that little interval between first and second broods will occur. (Wkly. Rpt. Fr. Grs.). COLORADO - Adults taken in traps in all areas of Delta County apple orchards. (Bulla). UTAH - Heaviest flight occurred night of June 1. Six adults taken in bait pans and 3 in light trap at Logan, Cache County. (Davis). OREGON - Adults taken in light trap at Forest Grove, Washington County, May 25. (Prescott).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - Adults taken in bait traps past 30 days in Mesa County peach orchards. Extensive controls used in Palisade area where heaviest numbers occur. Total of 797 moths from 42 properties collected to May 31. None taken in Montrose and Delta Counties. (Colo. Dept. Agr., Anderson, Poyner). PENNSYLVANIA - Entering peach twigs in unsprayed orchards in south central area. (Pepper). CONNECTICUT - Injured peach terminals in New Haven; first brood not numerous. (Savos). ALABAMA - Heavy tip damage noted on peach twigs throughout central area. (McQueen).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Larvae causing considerable damage to unsprayed trees; also found in many sprayed orchards. (Savos). WISCONSIN - Larvae abundant in some Door County apple orchards. (Wis. Ins. Sur.). NEVADA - Larvae light, variable on apple in Reno-Sparks area, Washoe County. (Bechtel, Gallaway, Rivers).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Larvae causing considerable damage to unsprayed trees; also found in many sprayed orchards. (Savos). PENNSYLVANIA - On water sprouts of apple in south central area; pupation and few adults noted. (Pepper). WISCONSIN - Larvae abundant in some Door County apple orchards. (Wis. Ins. Sur.).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Conspicuously damaging orchard at Granite, Salt Lake County; damage reported elsewhere. (Davis). COLORADO - Adults emerging in Mesa County peach orchards. (Bulla).

A PEACH TREE BORER (Sanninoidea sp.) - NEW MEXICO - Larvae killing peach trees in number of orchards near Albuquerque, Bernalillo County; often 2-4 per peach tree. (N.M. Coop. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - OHIO - Ranged 1-2 larvae per sweet cherry tree in Lake County, northeast. (Rings). UTAH - Defoliating apples and other trees about many homes at Logan, Cache County, and some at Ogden. (Knowlton).

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Egg laying heavy in orchards where early controls not applied or ineffective. (MacCollom, June 1). MASSACHUSETTS - Adults and nymphs present; egg laying abundant in poorly sprayed apple orchards. (Wave). CONNECTICUT - Cool weather reduced populations; ideal time to treat. (Savos). NEW JERSEY - Heavy in several apple orchards. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Severe on untreated apple orchards in south central area. (Pepper). OHIO - Heavy on commercial apple orchard near Pedro, Lawrence County, south central; ranged up to 200-225 eggs per leaf. Adult activity high. (Lyon). Adults causing damage in Erie County, north central. (Holdsworth).

Some bronzing of apple foliage reported in southern section of State. Populations in Wooster area, northeast, range 0-3 per leaf on check apple trees. (Forsythe). MICHIGAN - Eggs abundant in Kent County apple orchards; rapid buildup could occur. (Klackle, Wooley). MISSOURI - Present in most orchards but in very low numbers. More than 3 per leaf found on scattered, isolated orchards in central area. (Wkly. Rpt. Fr. Grs.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MASSACHUSETTS - Moved well up into trees; depositing numerous eggs on apples. (Wave). CONNECTICUT - Activity low generally; heavy on peaches and light on apples in eastern area. (Savos). OHIO - Only an occasional motile mite found on apple leaves in Wooster area, Wayne County, northeast. (Forsythe). MISSOURI - Present in most orchards but in very low numbers. More than 3 per leaf found on scattered, isolated orchards in central area. (Wkly. Rpt. Fr. Grs.). CALIFORNIA - Heavy on dooryard pear trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - LOUISIANA - Untreated plum orchards severely damaged; second generation expected to appear June 10-12. (Newsom, Cancienne, Tynes). FLORIDA - Adults developed from larvae in peach drops collected April 14. Emergence started May 30 at Monticello, Jefferson County. (Phillips). GEORGIA - Infested 100 percent of fruit in abandoned peach orchard in Douglas County. (Vanderford, May 29). MINNESOTA - Feeding and egg-laying punctures found on apple and plum fruits in dooryard and neglected trees. (Minn. Ins. Rpt.). OHIO - Plums with egg-laying scars beginning to drop during period June 1-4 in Wayne County, northeast. (Forsythe). CONNECTICUT - Activity very low but adults still found in trees. Expected to increase for additional week. (Savos). VERMONT - Continued egg laying expected if temperatures reach 75° F. or higher for 2 successive days. (MacCollom, June 1).

A LEAF BEETLE (Anomoea sp.) - LOUISIANA - Heavy feeding noted on plum terminals in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severe on stem of pear at Macclenny, Baker County. (Collins, May 25). NEW MEXICO - Light to moderately heavy and damaging untreated apple trees in Bernalillo County apple orchards. (N.M. Coop. Rpt.). CALIFORNIA - Locally heavy on dooryard apple trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - PENNSYLVANIA - Eggs present on peaches in south central area. (Pepper). CALIFORNIA - Eggs and adults of L. corni complex medium on almond trees in Paso Robles, San Luis Obispo County. Light on pear trees in Lake Hughes, Los Angeles County, and light on apple trees in Soquel, Santa Cruz County. (Cal. Coop. Rpt.).

SCURFY SCALE (Chionaspis furfura) - VIRGINIA - Heavy on 3 Early Harvest apple trees in orchard near Clintwood, Dickenson County; other apple varieties in same orchard apparently not infested. (Amos, Dinwiddie; May 29).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on plum nursery stock in San Leandro, Alameda County. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - CONNECTICUT - Low throughout State. (Savos). NEW JERSEY - Generally increased, particularly on water sprouts in centers of apple trees. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Showing on new growth on apple trees in south central area. (Pepper). MISSOURI - Starting buildup on water sprouts on insides of trees. (Wkly. Rpt. Fr. Grs.).

ROSY APPLE APHID (Anuraphis rosea) - CONNECTICUT - Low throughout State. (Savos). PENNSYLVANIA - Leaving apples in south central area. (Pepper). OHIO - Many winged forms leaving apple trees; relatively short period of infestation near Fredericksburg, Wayne County, northeast. Predators active. (Cutright). COLORADO - Light to medium in Garfield County; 5-10 colonies per apple tree. Controls recommended on first cover. (Bulla).

BLACK PEACH APHID (Anuraphis persicaeniger) - UTAH - Less damaging than in 1963 in Washington County. (Burnett).

GREEN PEACH APHID (Myzus persicae) - UTAH - Much less abundant in southern peach orchards than in 1963. (Burnett). COLORADO - Remains extremely light on peaches in Mesa County; lowest population level in several years. (Bulla). PENNSYLVANIA - Numerous on peaches in south central area even after several treatments. (Pepper).

PERIODICAL CICADAS (Magicicada spp.) - MISSOURI - Emergence continues in western area; reported in St. Joseph area. A third species of Brood IV determined in Kansas City area. (Wkly. Rpt. Fr. Grs.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Adults numerous in Whitman and Garfield Counties in pear orchards; immatures scarce. (Brannon). IDAHO - Moderate on pear leaves generally throughout orchard near Parma. (Bechtolt). MICHIGAN - Nymphs observed in "hard-shell" stage in Kent County. (Wooley). OHIO - Moderate population of nymphs and adults on pear trees near Marietta, Washington County, southeast. Honeydew abundant. (Lyon).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Injury now very noticeable; pears attacked in New Haven but incidence of injury lower than in 1963. (Savos).

SAWFLIES - MASSACHUSETTS - Injury very noticeable on fruit trees where controls applied too late; injury much more prevalent this year than in 1963. (Wave).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Adults began to emerge in The Dalles area, Wasco County, May 26. (Taylor).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - MICHIGAN - Adults emerged in cage at Kingsley, Grand Traverse County, May 31; this is earliest known emergence record for State. Emergence continued at Kent County cage. (Gardner, Wooley, Gilmore).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Cool weather delayed activity but numerous entries noted in unsprayed blueberries. Prolonged activity expected this season; controls important. (Ins.-Dis. Newsltr.).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Cool weather delayed activity but numerous entries found in unsprayed blueberries, Prolonged activity expected this season; second application important. (Ins.-Dis. Newsltr.).

A CRANBERRY BLOSSOMWORM (Epiglaea apiata) - NEW JERSEY - Observed in the few areas where generally a pest. (Ins.-Dis. Newsltr.).

A LEAF ROLLER MOTH (Sparganothis sp.) - NEW JERSEY - Active on practically all cranberry bogs. (Ins.-Dis. Newsltr.).

IMPORTED CURRANTWORM (Nematus ribesii) - UTAH - Damaging gooseberry foliage at Clarkston, Cache County. (Knowlton, Tueller).

LEAFHOPPERS - NEW JERSEY - Wing-pad stage noted on June 4; flight period of winged stage which transmits blueberry stunt expected soon. Controls important. All blueberry propagators in State Certification Program required to control leafhoppers. (Ins.-Dis. Newsltr.).

A CRANBERRY TIPWORM (Dasyneura vaccinii) - NEW JERSEY - Active on practically all cranberry bogs. (Ins.-Dis. Newsltr.).

GRAPE FLEA BEETLE (Altica chalybea) - IOWA - Adults present on grapes and woodbine in central area; development late, little damage expected. (Iowa Ins. Inf., June 1).

A FALSE CHINCH BUG (Nysius sp. probably raphanus) - CALIFORNIA - Adults heavy on grapevines in Madera, Madera County. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - A 14-percent infestation present in pecan areas of Garvin County, (south central); light to moderate in Choctaw (southeast), Bryan (south central) and Tillman (southwest) Counties. (Okla. Coop. Sur.). LOUISIANA - Destroyed 50 percent of pecans at Plaquemines Parish Experiment Station. Caused serious damage in untreated orchards throughout State. (Newsom, Cancienne, Tynes; June 1). FLORIDA - Adults of second generation active at Monticello, Jefferson County. (Phillips).

HICKORY SHUCKWORM (Laspeyresia caryana) - FLORIDA - Larvae infesting immature drops of Hicon nuts in Jefferson County. (Phillips).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Increasing on pecan, hickory and persimmon throughout State. (Newsom, Cancienne, Tynes; June 1). FLORIDA - Light on pecans in Jefferson County. (Phillips).

A PECAN CURCULIO (Conotrachelus pecanae) - ALABAMA - Causing considerable damage to new growth shoots and limbs in pecan orchard in Montgomery County. Grubs boring up and down center of 6-15-inch shoots in new growth and destroying it. (McCay).

PECAN PHYLLOXERA (Phylloxera devastatrix) - GEORGIA - Moderate on pecan leaves in Bacon County. (Johnson).

BLACK PECAN APHID (Melanocallis caryaefoliae) - LOUISIANA - Appearing on pecans in East Baton Rouge Parish in unsprayed orchards. (Newsom, Cancienne, Tynes; June 1). NEW MEXICO - Rapid buildup of this species and Monellia costalis noted on pecan trees in Mesilla Valley during past week. Some growers preparing to treat. (N.M. Coop. Rpt.).

AN APHID (Monellia sp.) - FLORIDA - Heavy on pecans and causing much honeydew on leaves in Jefferson County. (Phillips).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Second-generation larvae causing considerable damage to citrus nurseries in Yuma County. (Ariz. Coop. Sur.).

ORANGE-DOG (Papilio cresphontes) - LOUISIANA - Light on citrus in Plaquemines Parish. (Newsom, Cancienne, Tynes; June 1).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Severe on leaves of seedling sweet orange at Eustis, Lake County; all 700 plants inspected reported infested (Bentley, May 22).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Severe on leaves of 700 sweet orange seedlings at Eustis, Lake County. (Bentley, May 22).

MELON APHID (Aphis gossypii) - CALIFORNIA - Medium on citrus trees locally in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy in areas of Yuma and Maricopa Counties; continued control required to protect new growth. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - End of May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 33 percent of groves (norm 48 percent); 21 percent economic (norm 28 percent). Although statewide population in low range, scattered groves developing high infestations. Increase will become general about mid-June. Highest districts west and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 48 percent of groves (norm 37 percent); 33 percent economic (norm 22 percent). Population dropped slightly in late May and expected to remain near

current moderate level. Despite unusual May decline, statwide population higher than May of any prior year. Highest districts east, central and north. CITRUS RED MITE (Panonychus citri) infested 59 percent of groves (norm 71 percent); 42 percent economic (norm 49 percent). Population has taken strong upward trend which will result in moderate to heavy infestations in majority of groves. Highest districts north, west and central. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) decreased from low level reported at mid-May peak. Populations of PURPLE SCALE (Lepidosaphes beckii), GLOVER SCALE (L. gloverii), CHAFF SCALE (Parlatoria pergandii), and YELLOW SCALE (Aonidiella citrina) substantially same as reported in mid-May (cf. CEIR 14(22):542). BLACK SCALE (Saissetia oleae) infested 46 percent of groves (norm 32 percent); 28 percent economic (norm 16 percent). Population above normal and approaching high range. A continued strong increase to high level expected in all districts except north. Highest districts west, south, east and central. MEALYBUGS infested 56 percent of groves (norm 32 percent); 24 percent economic (norm 6 percent). Population increased rapidly from below average level in April to May level which was the highest in 13 years of record. Some groves with nearly all fruits infested with numerous individuals on leaves and twigs. Highest districts east, south and central. Lowest districts west and north. WHITEFLIES infested 68 percent of groves (norm 61 percent); 30 percent economic (norm 18 percent). High population of all forms will continue. Larvae of cloudy-winged species (Dialeurodes citrifolii) most abundant species at present. Adult whiteflies are increasing. (W. A. Simanton (Citrus Expt. St., Lake Alfred)).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Numerous egg masses present on potatoes in Suffolk County; hatching expected week of June 1. (N.Y. Wkly. Rpt.). RHODE ISLAND - Adults and eggs common on unsprayed plots; scarce on commercial plantings in Kingston and Richmond, Washington County, and Newport, Newport County. (Mathewson, Kerr, Peabody). MASSACHUSETTS - Adults abundant on unsprayed potatoes; many egg masses deposited. (Wave). VIRGINIA - All stages present on Eastern Shore including newly emerged adults. Weather caused staggered first brood. (Hofmaster). MICHIGAN - First adults noted in Monroe, Clinton and Gratiot Counties. (Wells, Berlien). OHIO - Severe feeding damage occurring in many southern counties. Several potato plants completely defoliated. (Lyon). WASHINGTON - Egg masses abundant on Solanum villosum and small potato plants in Walla Walla and Toppenish areas May 27. (Landis).

POTATO FLEA BEETLE (Epitrix cucumeris) - RHODE ISLAND - Adults and eggs common on unsprayed plots; scarce in commercial plantings in Kingston and Richmond, Washington County, and Newport, Newport County. (Mathewson). MASSACHUSETTS - Abundant in some fields and causing extensive damage to foliage. (Wave).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Moderate to heavy on tomatoes throughout State. (Newsom, Cancienne, Tynes; June 1). ARKANSAS - Total of 59 larvae collected from tomatoes in Desha, Ashley and Bradley Counties determined this species. (Ark. Ins. Sur.).

POTATO TUBERWORM (Gnorimoschema operculella) - CALIFORNIA - Larvae light in potatoes in Edison, Kern County. (Cal. Coop. Rpt.).

HORNWORMS (Protoparce spp.) - LOUISIANA - Moderate on tomatoes in East Feliciana Parish; light on eggplant in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

POTATO APHID (Macrosiphum euphorbiae) - OHIO - Beginning buildup on tomatoes at Marietta, Washington County, southeast. (Racer). CALIFORNIA - Heavy on lettuce in Fresno, Fresno County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Building up on bindweed (Convolvulus sp.) in Weld County; wingless forms in colonies. (Daniels).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults noted in potato fields in Weld County; 0-2 per 100 sweeps. Controls recommended. (Urano).

A SPRINGTAIL (Entomobrya unostrigata) - CALIFORNIA - Nymphs and adults medium on potato field soils in Huron, Fresno County. (Cal. Coop. Rpt.).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Appearing in early plantings in Nassau County. (N.Y. Wkly. Rpt.). NEW JERSEY - None collected from traps at Great Meadows, Warren County June 4. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Caused 100 percent damage to radishes in home garden in Centre County. (Udine). WISCONSIN - Larvae nearly destroyed 3-acre field of cabbage in Columbia County. (Wis. Ins. Sur.). MINNESOTA - Damaged radishes on some farms in Anoka where soil treatments not used. (Minn. Ins. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Severely infesting 100 percent of 200 cabbage plants at Sanford, Seminole County. (Desin). WISCONSIN - Larvae severe in certain fields of cabbage in Columbia County. (Wis. Ins. Sur.).

PEA APHID (Acyrthosiphon pisum) - WISCONSIN -Remains very low in pea plantings; counts per 10 sweeps in early peas large enough to sweep as follows: Dane County 3-20, central Iowa-Grant County area 5, Rock County 2, northern Iowa County 2, Sauk County 5-12, and Columbia County 3. Examination of Sweets and Allsweets from 1-4 inches high revealed beginning of colonies in many fields; buildup anticipated in weeks to come. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Nymphs present on snap beans in some areas of Sussex County. (Kelsey, Burbutis).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light to moderate on snap beans in south central area. (Johnson). ALABAMA - Damage to beans widespread in Chambers County; heavy on untreated beans in Geneva County. (Smith, Reynolds). LOUISIANA - Feeding on beans in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - Continues heavy in West Carroll Parish. (Newsom, Cancienne, Tynes; June 1).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Moderate numbers appearing in Casa Grande area, Pinal County. Damaged green bean seedlings. (Ariz. Coop. Sur.).

LIMA-BEAN POD BORER (Etiella zinckenella) - LOUISIANA - Moderate on beans in East Feliciana Parish. (Newsom, Cancienne, Tynes; June 1).

CLOVER CUTWORM (Scotogramma trifolii) - WISCONSIN - Field of Alaska Pack peas near harvest with 6-8 larvae per 10 sweeps; larvae feeding on lambs-quarters in field. (Wis. Ins. Sur.).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Damage becoming evident on some plantings in Orange County. (N.Y. Wkly. Rpt., June 1). NEW JERSEY - Trap at Great Meadows, Warren County, yielded 46 adults June 4; none collected from trap at Cedarville, Cumberland County, on same date. (Ins.-Dis. Newsltr.). MICHIGAN - Larvae light on untreated research plots in Newaygo and Clinton Counties. (Wells).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Medium on 20 acres of onions in Kings City area, Monterey County. (N. F. McCalley, Ext. Serv.).

ONION ROOT MITES - NEW YORK - Continue active in Orange County. (N.Y. Wkly. Rpt., June 1).

EASTERN FIELD WIREWORM (Limonius agonus) - OHIO - Heavy in sugar beets near Bryan, Williams County, northwest. (Spieth, Holdsworth).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - WASHINGTON - Adults present but scarce on sugar beets in Walla Walla area, May 28. (Landis).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Counts increasing over past week in Mesa County sugar beet fields. Controls applied in most fields. (Bulla). IDAHO - Nymphs ranged 8-16 per square foot in proposed control area during last 2 weeks of May. Further survey to be made first week of June to determine necessity for control. Controls, if necessary, will begin week of June 8. (Evans).

A LEAFHOPPER (Paraphlepsinus strobi) - PENNSYLVANIA - Adults and nymphs causing leaf discoloration of sugar beets and Chenopodium sp. in Lancaster County. (Pepper).

LYGUS BUGS (Lygus spp.) - WASHINGTON - First nymphs observed on sugar beets in Walla Walla area May 27. (Landis).

BEAN APHID (Aphis fabae) - ALABAMA - Damage to beans widespread in Chambers County. (Smith, Reynolds). WASHINGTON - Colonies being established on sugar beets in Walla Walla area May 27. (Landis).

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Moderate numbers of adults taken in light traps. Egg deposition in beet fields noted in Weld and Otero Counties. (Riggs, Reynolds, Schweissing). UTAH - Adults appeared at Logan, Cache County. (Knowlton).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - Small numbers present in sugar beet fields of Walla Walla area. (Landis).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Adults light; eggs and a few larvae just appearing on sugar beet foliage in scattered fields in Toppenish and Zillah areas, Yakima County, May 28-29. (Powell, Wallis).

LEAF MINERS - CONNECTICUT - Fairly heavy in leaves of spinach and beets. (Minnum). MARYLAND - Pegomya hyoscyami infesting maturing spinach crop in Baltimore County. (U. Md., Ent. Dept.).

CUCUMBER BEETLES (Diabrotica spp.) - LOUISIANA - D. undecimpunctata howardi light in Tangipahoa Parish and light to moderate on melons in West Carroll Parish. D. balteata adults continue light in sweetpotato-growing areas. (Newsom, Cancienne, Tynes; June 1). OHIO - D. undecimpunctata howardi adults feeding on cucumbers in Washington County, southeast. Dissected females full of eggs. (Lyon).

SQUASH VINE BORER (Melittia cucurbitae) - LOUISIANA - Adults appearing in fields in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Light on squash in Stillwater area, Payne County; egg laying underway. (Okla. Coop. Sur.). LOUISIANA - Heavy on squash in West Carroll and East Baton Rouge Parishes. (Newsom, Cancienne, Tynes; June 1).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - WISCONSIN - Combination of larval feeding by this weevil and strawberry root aphid (Aphis forbesi) causing considerable injury to strawberry planting in Dane County. (Wis. Ins. Sur.).

A FALSE CHINCH BUG (Nysius sp., probably raphanus) - CALIFORNIA - Heavy in Clovis, Fresno County, on strawberries. (Cal. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - Numerous on strawberries in some areas. (Ins.-Dis. Newsltr.).

A SAP BEETLE (Stelidota geminata) - MARYLAND - Infesting strawberry fruits at Germantown, Montgomery County. (U. Md., Ent. Dept.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Heavy on sweetpotatoes in West Carroll Parish. (Newsom, Cancienne, Tynes; June 1).

TORTOISE BEETLES - LOUISIANA - Moderate to heavy and causing foliage damage to sweetpotatoes in West Carroll Parish. (Newsom, Cancienne, Tynes; June 1).

GARDEN SYMPHYLAN (Scutigerella immaculata) - VIRGINIA - Severe on vegetables in home garden in Mendota, Washington County. (Tarpley, Sinclair; May 29). This is first ARS record for State.

FLEA BEETLES - NEW YORK - Active on many early vegetable crops. Radishes, crucifer seedbeds, crucifer transplants and tomatoes need protection. (N.Y. Wkly. Rpt., June 1). UTAH - A black species damaged number of sugar beet fields in Salt Lake, Box Elder and Utah Counties until warm weather brought rapid plant growth. (Knowlton).

SEED-CORN MAGGOT (Hylemya platura) - IDAHO - Generally occurring and occasionally heavy damage to home plantings of vegetables at Blackfoot. (Gittins).

STINK BUGS - LOUISIANA - Appearing on several vegetable crops in East Feliciana Parish; building up on tomatoes in Plaquemines Parish. (Newsom, Cancienne, Tynes; June 1).

THRIPS - DELAWARE - Two to three species very numerous on some snap beans in areas of Sussex County. (Burbutis, Kelsey). NEW MEXICO - Heavy populations built up on late onions in number of southern Dona Ana County onion fields. (N.M. Coop. Rpt.).

TOBACCO INSECTS

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to heavy on tobacco in south central area. (Johnson).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Moderate on tobacco in Telfair County. (McKinnon).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco in south central area. (Johnson).

WIREWORMS - OHIO - Undetermined species injuring tobacco plants in Monroe County. (Pollock).

COTTON INSECTS

THRIPS - SOUTH CAROLINA - General in most areas. (Cott. Ltr., June 1). GEORGIA - Light to moderate on cotton in south central and southwest. (Johnson, June 4). MISSOURI - Averaged 1-20 per plant in southeast. Causing severe leaf curling. (Jones). TENNESSEE - Continued light to moderate over western area; damage considered light. (Locke). MISSISSIPPI - Of 50 fields checked in delta area, none in 3, light in 28, medium in 18 and heavy in one field. Average number per plant in infested fields 0.92. (Pfrimmer et al.). LOUISIANA - Persisting in late cotton in northern area; ranging light to heavy. Rains caused decline in some areas; most cotton beyond stage for damage. (Newsom, Cancienne, Tynes; June 1). TEXAS - In McLennan and Falls Counties, infestations light in 10 fields, medium in 4, heavy in 3 and none in 2 fields. (Cowan et al.). OKLAHOMA - Frankliniella sp. light to moderate in cotton in Choctaw and McCurtain Counties (southeast) and Grady County (central). (Okla. Coop. Sur.). ARIZONA - Large populations of Franklinella spp. continue to plague growers in Graham, Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Beginning to appear in many coastal plain fields. Dry weather probably delayed weevil emergence to some extent but good, general rain will encourage exit from hibernation. (Cott. Ltr., June 1). ALABAMA - Field in Dallas County recently had 5 weevils per 100 feet or about 650 per acre. Another field had 40 percent square infestation. Live weevil captured in Marshall County in late May. (Patterson). TENNESSEE - Only 4 weevils found feeding in terminal buds of cotton to date in western area; 3 in McNairy County and 1 in Hardeman County. (Locke). MISSISSIPPI - Out in numbers in many delta county areas following rain. Weevils found in field of squaring cotton in Washington County at rate of 697 per acre. (Pfrimmer et al.). LOUISIANA - Overwintering weevils appearing in early cotton in East Feliciana, Rapides and Tensas Parishes. (Newsom, Cancienne, Tynes; June 1). TEXAS - Activity remains light; 1 weevil found in 81 fields inspected in McLennan and Falls Counties. No activity in hibernation cages and none collected on flight screens. (Cowan et al.).

PALE-STRIPED FLEA BEETLE (Systena blanda) - MISSOURI - Reported light to moderate in north Pemiscot County and south New Madrid County, southeast area. Feeding mostly on cotyledons. (Jones). TENNESSEE - This species and a black flea beetle causing some injury to terminal buds over western area. Control not justified at present. (Locke).

BOLLWORMS (Heliothis sp. et al.) - SOUTH CAROLINA - Appearing on young cotton in several low country counties. Light trap reports from Pee Dee Experiment Station show 146 H. zea moths caught to date compared with 76 to date in 1963. (Cott. Ltr., June 1). GEORGIA - Egg counts ranged 0-13 per 100 terminals; averaged 4 per 100. Larval counts ranged 0-8 per 100 terminals; averaged 3. Counts made in south central and southwest. (Johnson, June 4). MISSISSIPPI - Eggs found in some fields; older cotton should be watched closely. (Young, Bennett; June 2). LOUISIANA - Appearing in older cotton in northern area, especially where insecticides applied. (Newsom, Cancienne, Tynes; June 1). TEXAS - Infestation remains light in McLennan and Falls Counties. In 67 treated fields, eggs averaged 0.2 and larvae 0.1 per 100 terminals. In 14 untreated fields, eggs averaged 0.1 and larvae 0.1 per 100 terminals. (Cowan et al.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence from test cages in Graham County decreased during week; 252 moths emerged. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA- Light on young cotton in areas of Yuma and Pima Counties; causing concern to some growers. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - LOUISIANA - Appearing in Bossier and Caddo Parishes but not in damaging numbers. (Newsom, Cancienne, Tynes; June 1). GEORGIA - Light on cotton in Colquitt County. (Johnson, June 3).

CUTWORMS - SOUTH CAROLINA - Reported in Edgefield, Greenwood and Hampton Counties. (Cott. Ltr., June 1). ALABAMA - Outbreak destroyed 15-20 percent of stands on lowlands in 2,000 acreage of cotton in Wilcox County. (Ledbetter). TENNESSEE - Present in some areas, mainly in northern area of western third of State. (Thomas, Mullett; June 2). OKLAHOMA - Heavy infestations of several species killed stands on some farms in Caddo County (west central). (Okla. Coop. Sur.).

COTTON APHID (Aphis gossypii) - OKLAHOMA - Light on cotton in Choctaw and McCurtain Counties. (Okla. Coop. Sur.).

APHIDS - SOUTH CAROLINA - Plentiful throughout State. (Cott. Ltr., June 1). TENNESSEE - Continue present over cotton-growing area in western part of State. Ranged very light to moderate. Predators keeping aphids in check so far this season. Conditions for aphid buildup considered good. (Locke).

ROOT APHIDS - SOUTH CAROLINA - Observed in Orangeburg County. (Cott. Ltr., June 1).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Heavy populations continue in cotton fields of Maricopa, Pima, Pinal and Yuma Counties. Averaged 60 per 100 plants in central areas and 30 per 100 plants in Yuma County. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - LOUISIANA - Light in Bossier, heavy in Caddo and spotted in Tensas and Franklin Parishes. Cotton not in stage where damage can occur. (Newsom, Cancienne, Tynes; June 1). TEXAS - Averaged 8.6 per 100 terminals in 67 treated fields and 23.1 in 14 untreated fields with overall average of 11.7 and maximum of 57.5 in McLennan and Falls Counties. This compares with 8.5 per 100 terminals in 59 fields inspected in 1963. (Cowan et al.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Present in some areas but damage not serious. (Stromberg, May 29).

TARNISHED PLANT BUG (Lygus lineolaris) - TEXAS - Found in 24 fields with high of 3.5 per 100 terminals in 1 field in McLennan and Falls County area. (Cowan et al.). MISSISSIPPI - Found in a few delta area fields. (Pfrimmer et al.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing slowly in nearly all areas. Very little square or boll damage found at present. (Ariz. Coop. Sur.).

SEED-CORN MAGGOT (Hylemya platura) - SOUTH CAROLINA - Destroyed part of a stand of cotton in Chesterfield County. Soybeans and other trash had been removed from barn and placed on field before cotton planted. Area of cotton killed was identical with area covered by trash. Det. by R. C. Fox. (Nettles et al., June 2).

SPIDER MITES - TENNESSEE - Causing damage to young cotton in several instances; damage severe enough to warrant control. (Thomas, Mullett; June 2). ALABAMA - Tetranychus spp. light to heavy in isolated cotton fields in Lee, Talladega and Morgan Counties. (Teague, Mathews et al.). CALIFORNIA - Some infestation in Fresno County of Tetranychus atlanticus and T. telarius; however, serious problems not encountered. (Stromberg, May 29). In Kern County, infestations still present but plants growing away from spider mite feeding injury. Treatments gave good control. (Black, May 31).

INTERCEPTIONS

KHAPRA BEETLE (Trogoderma granarium) - WISCONSIN - An African ship intercepted in Port of Milwaukee containing infestation. This is first incidence of infested ship entering a Wisconsin port. Specimens confirmed. Ship undergoing fumigation. (Wis. Ins. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

CANKERWORMS - NORTH DAKOTA - Larval feeding continues in east; some isolated cases of severe defoliation occurred. (Frye). MINNESOTA - Feeding should be completed shortly; pupation observed in St. Paul-Minneapolis area. Considerable damage reported from west central and Red River Valley areas. (Minn. Ins. Rpt.). WISCONSIN - Damage minor to severe in Columbia County. Spotty infestations reported from Dodge, Eau Claire and Monroe Counties. Alsophila pometaria dominant species. (Wis. Ins. Sur.). IOWA - Larvae entering soil to pupate. (Iowa Ins. Inf., June 1). MICHIGAN - Larvae of Paleacrita vernata and A. pometaria generally completed their development and migrated from infested trees in Ingham County. (Butcher). NEW YORK - A. pometaria and P. vernata caused extensive feeding in maple orchards in Allegany County; both species appear generally more abundant in State this year. (N.Y. Wkly. Rpt., June 1). CONNECTICUT - Increased greatly in size and feeding on ornamental trees and shrubs very noticeable. (Savos). RHODE ISLAND - Larvae, probably mixed species, caused localized defoliation in Lincoln and Smithfield, Providence County. (Veilleux, King).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Emergence of first-generation moths essentially complete June 1 in southeast. Emergence in central area 3-5 days behind. Infestations in pine plantations in Payne County, north central, range up to 75 percent of shoots. Infestations in Pushmataha and McCurtain Counties (southeast) ranged from less than 1 to 15 percent. (Okla. Coop. Sur.). LOUISIANA - Second-generation larvae infesting seedling pines 1-4 years old in Livingston Parish. Heavy feeding on larvae by imported fire ant (Solenopsis saevissima richteri) observed. (Newsom, Cancienne, Tynes; June 1). GEORGIA - Thirty percent of seedling pines infested in one tract in Douglas County. (Vanderford, May 29).

EUROPEAN PINE SHOOT MOTH (Rhyacionia bouliana) - RHODE ISLAND - Larvae and pupae present in infested tips from Kingston, Washington County. (Mathewson). NEW YORK - Moderately abundant in Scotch pine plantations in Ithaca area; pupation begun. (N.Y. Wkly. Rpt., June 1). PENNSYLVANIA - Causing tip injury to new shoots of Scotch pine in Indiana County; unlike normal injury. (Udine). MICHIGAN - Pupation started in Benzie County. A 25-shoot sample taken June 1 in Livingston County showed 60 percent dead larvae, 20 percent live larvae and 20 percent pupae. Larval death apparently caused by the parasitic eulophid wasps, Hyssopus. A high percentage of larval death normal at this date and has no major influence on yearly population levels of R. bouliana. (Haskin, Flink, Newman, Miller).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Freezing weather has blasted up to 50 percent of white spruce and balsam tips in northern counties. Effect on this insect not known yet. (Minn. Ins. Rpt.).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Still in second and third instars in northern counties. Freezing weather apparently had no serious effect on population. (Minn. Ins. Rpt.).

LARCH CASEBEARER (Coleophora laricella) - IDAHO - Pupation now starting in Clarkia area of Shoshone County and along Emerald Creek in Latah County. (Schenk).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - LOUISIANA - Damaging ornamental pines in Pointe Coupee Parish. (Newsom, Cancienne, Tynes; June 1).

FOREST TENT CATERPILLAR (Malacosoma disstria) - VERMONT - Few reported in Fairlee, Orange County. (MacCollom, June 1). LOUISIANA - Peak emergence occurred May 22-27. Parasites heavy on prepupae and pupae. (Newsom, Cancienne, Tynes; June 1). MINNESOTA - Scattered high infestation reported from International Falls and Kabetogama areas. (Minn. Ins. Rpt.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Continues to defoliate cottonwoods along Virgin River and elsewhere in Washington County. Also occurring in Moab area of Grand County. (Burnett, Knowlton). Attacking shrubs and trees in foothills and canyons near Salt Lake City, Salt Lake County. (Knowlton, Parrish).

A TENT CATERPILLAR (Malacosoma constrictum) - CALIFORNIA - Medium larval infestation on white oak trees in Atascadero, San Luis Obispo County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VERMONT - Damaging ornamentals in many areas. (MacCollom, June 1).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Adults emerged and appeared in large numbers in light traps near Las Cruces, Dona Ana County, during last week of May and first week of June. Heavy larval infestations expected on host trees during June and July. (N.M. Coop. Rpt.).

UGLY-NEST CATERPILLAR (Archips cerasivoranus) - COLORADO - Injury quite general on roses, chokcherry and plum in Larimer County; larvae in late stages. (Thatcher, Daniels).

DOGWOOD BORER (Thamnosphecia scitula) - DELAWARE - Rather common in some dogwood trees in areas of New Castle County. (Burbutis).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Lightly infesting leaves of chrysanthemums on a commercial farm at Punta Gorda, Charlotte County, and Alva, Lee County. (Walsh).

BUCK MOTH (Hemileuca maia) - LOUISIANA - Most larvae pupated. (Newsom, Cancienne, Tynes; June 1).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Moderate to heavy infestations present on evergreens in Noble (north central) and Garvin (south central) Counties. (Okla. Coop. Sur.). INDIANA - Hatched in Lafayette, Tippecanoe County; now one-eighth of an inch long. (Schuder). OHIO - New brood observed in Zanesville area of Muskingum County, east central area. (Ellis). MARYLAND - Young larvae on juniper at Rockville, Montgomery County, on June 1. (U. Md., Ent. Dept.).

ARBORVITAE LEAF MINER (Argyresthia thuiella) - MARYLAND - Adults active around plants at Rockville, Montgomery County, on June 1. (U. Md., Ent. Dept.).

SPRUCE NEEDLE MINER (Taniva albolineana) - WASHINGTON - Moderate to heavy pupal populations in Pullman area of Whitman County, especially on blue spruce ornamentals; same conditions at Kennewick, Benton County, on May 14. (Johansen, Dodge).

APHIDS - CONNECTICUT - Unspecified species becoming increasingly noticeable on wide variety of deciduous and evergreen trees and shrubs. (Savos). RHODE ISLAND - Aphids, probably Cinara sp., very common on 3-needled pine in Richmond and Hopkinton, Washington County. An undetermined species heavy(curling leaves)on individual elms in Kingston, Washington County. (Mathewson). PENNSYLVANIA - Considerable Periphyllus negundinis present on boxelder and P. lyropictus producing much honeydew on Norway maples in south central area; some honeydew also produced by Drepanaphis sp. on hard maple in south central area. (Pepper). MARYLAND - Exceedingly heavy outbreak of Myzocallis ulmifolii on American elms in Prince Georges County. Production of honeydew heavy. (U. Md., Ent. Dept.). DISTRICT OF COLUMBIA - Phyllaphis fagi heavily infested large American beech tree May 31. Enormous numbers of alates present; leaves very sticky with honeydew. Collected by F. L. Campbell; det by M. D. Leonard. Myzocallis tiliae rather numerous on

large linden trees in Meridian Hill Park; considerable honeydew present. (Leonard). ALABAMA - Prociphilus tessellatus becoming quite common on alders in Lee County. (McQueen). LOUISIANA - Unspecified species heavy on roses in southern area. (Newsom, Cancienne, Tynes; June 1). NEW MEXICO - Unspecified species light to moderate on roses in Bernalillo and Rio Arriba Counties. (N.M. Coop. Rpt.). ARIZONA - Large populations of Aphis nerii damaging oleander hedges in Maricopa and Pinal Counties. Heavy populations of Eriosoma lanigerum continue to damage apple trees and pyracantha in Graham County. Poplar trees in Phoenix area of Maricopa County heavily infested with galls caused by Pemphigus populitransversus. (Ariz. Coop. Sur.). NEVADA - Light to medium infestations of Liosomaphis berberidis on barberry in Reno, Washoe County. (Bechtel). IDAHO - Unspecified species infesting concolor spruce near Parma. Only southern exposures of tree infested, with much curling and twisting of needles of current years growth. (Scott). CALIFORNIA - Adults of Myzocallis kahawaluokalani medium on crapemyrtle nursery stock in Sanger, Fresno County. (Cal. Coop. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MICHIGAN - Few nymphal crawlers appearing from under female scales taken from Scotch pine in Livingston County. (Wilson). WISCONSIN - Populations high enough in area of eastern Rock County to prompt controls. (Wis. Ins. Sur.). MINNESOTA - Egg laying expected about June 12 in central district. (Minn. Ins. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - VERMONT - Control of crawlers on lilacs urged. (MacCollom, June 1). NEW YORK - Hatching started. (N.Y. Wkly. Rpt., June 1). PENNSYLVANIA - Crawlers active on ash in Huntingdon County on June 1. (Simons). MARYLAND - Nymphs on maple at College Park. (U. Md., Ent. Dept.).

COCCIDS - CALIFORNIA - Gossyparia spuria very heavy on elms at Fresno, Fresno County; Asterolecanium arabidis medium on pittosporum in Willows, Glenn County; Parlatoria oleae medium on peach nursery stock locally in Concord, Contra Costa County; Lecanium persicae adults and eggs medium on daphne plants in a nursery in Westminster, Orange County; Icerya purchasi heavy locally on orchid tree (Bauhinia) nursery stock in El Centro, Imperial County; Pulvinaria floccifera medium on Burford holly nursery stock in Santa Rosa, Sonoma County; and Aspidiotus perniciosus heavy on birch and locust nursery stock locally in Chico, Butte County. (Cal. Coop. Rpt.). LOUISIANA - Lecanium nigrofasciatum heavy on magnolias in East Baton Rouge, Livingston and St. Tammany Parishes; Fiorinia theae heavy on camelias, sasanquas and holly in East Baton Rouge and St. Tammany Parishes; Eriococcus azaleae hatched and crawlers active in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1). FLORIDA - Pseudaulacaspis pentagona severely infesting stem of a tea olive plant (Osmanthus fragrans) at Eustis, Lake County (Bentley, May 22); Saissetia hemisphaerica and Chrysomphalus aonidum severely infesting stem and leaves of olive at Ft. Lauderdale, Broward County (McLean, May 22). MARYLAND - Eggs and crawlers of Aspidiotus juglansregiae on hemlock in Queen Annes County on May 29 and Diaspis careuli eggs and crawlers on juniper at Takoma Park on June 1. (U. Md., Ent. Dept.). PENNSYLVANIA - Lecanium prunastri heavy on several dozen flowering plums in York County on May 28 (Negley); Gossyparia spuria heavy on elms in Harrisburg, Dauphin County, on June 1 (Sleesman) and heavy on elm in Lancaster County (Pepper); Lecanium fletcheri eggs under scales on taxus and arborvitae in Lawrence County (Goodman); and D. careuli light to heavy, eggs present and ready to hatch, on juniper in Luzerne County (Simons). NEW YORK - Majority of eggs of Lecanium corni on elm and redbud now laid. Increase noted on ornamental trees in Nassau County. (N.Y. Wkly. Rpt.).

GRAPE MEALYBUG (Pseudococcus maritimus) - PENNSYLVANIA - Heavy on foliage of taxus in 50 by 100-foot block in Luzerne County. (Andreychick).

WHITEFLIES - LOUISIANA - Heavy on ornamentals in Caddo Parish. (Newsom, Cancienne, Tynes; June 1).

PERIODICAL CICADAS (Magicicada spp.) - MISSOURI - Adults emerging and heavy in some wooded areas in northwest. (Houser, Thomas, Wood). KANSAS - Present in large numbers north of Wathena, Doniphan County, northeast. Reported present for about 10 days and new emergence still occurring. (Eshbaugh). Reported from Montgomery County, southeast. Observed in large numbers on and around shrubs including American elm, redbud, walnut and elderberry in Neosho County, southeast; Allen County, east central; and Leavenworth County, northeast. (Burkhardt, Peters). Reported from Cherokee and Cowley Counties, southeast. (Gates). OKLAHOMA - Heavy infestations of M. cassinii found on hackberrys and elms in Mayes County, northeast. Also reported from an airplane hanger in Bartlesville, Washington County, northeast. (Okla. Coop. Sur.).

A CICADA - NEVADA - Heavy adult population of unidentified species in Pioche area of Lincoln County; females ovipositing heavily in juniper, pinyon pine and various shrubs. (Bechtel, Zoller).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Nymphs and adults heavy on black acacia trees in Fremont, Alameda County, and on Acacia latifolius in Sebastopol, Sonoma County. (Cal. Coop. Rpt.).

PERSIMMON PSYLLA (Trioza diospyri) - FLORIDA - Severely infesting leaves of persimmon at Chipley, Washington County. (Albritton, May 28).

BOXWOOD PSYLLID (Psylla buxi) - NEW YORK - Actively feeding in Monroe County. (N.Y. Wkly. Rpt., June 1).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Moderate to heavy population in Jack pine all the way to the Canadian border. (Minn. Ins. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - NEW MEXICO - Abundant on boxelder trees around homes near Velarde, Rio Arriba County. Minor nuisance on walks and entering homes. (N. M. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW YORK - Egg laying first noted in Ithaca, Tompkins County, May 25. (N.Y. Wkly. Rpt.). RHODE ISLAND - Adult feeding apparent in Kingston, Washington County, and probably statewide. (Mathewson). MARYLAND - Noted on American elm in College Park and Bethesda. (U. Md., Ent. Dept.). GEORGIA - Moderate defoliation of elm in Fulton and De Kalb Counties. (Blasingame, May 29). ALABAMA - First-generation larvae causing considerable damage to elm foliage in Lee County. (Barwood et al.). OHIO - Larvae beginning to skeletonize elms in Columbus area; 2-9 larvae per leaf on one tree with 1-5 percent skeletonization. (Davidson). KANSAS - Counts 4-10 per leaf, first and second-stage larvae, on Chinese elm in Butler County on May 28. Feeding damage noted on Chinese elm in Riley County. (Charlton). Adults noted in Edwards County on May 28. (Martinez). Larvae 1-5 per leaf noted on American elms in Crawford County. (Peters). OKLAHOMA - Moderate to heavy infestations reported throughout State. (Okla. Coop. Sur.). NEW MEXICO - Medium to heavy infestations of adults on Chinese elms in vicinity of Espanola in Rio Arriba County and Santa Cruz in Santa Fe County. Eggs very numerous and hatching. (N.M. Coop. Rpt.). ARIZONA - Severe defoliation of elm trees occurring in Graham County, Phoenix area of Maricopa County and in Coolidge area of Pinal County. (Ariz. Coop. Sur.). NEVADA - Heavy numbers of adults, eggs and first-stage larvae in Hawthorne, Mineral County, and Caliente, Lincoln County. (Bechtel, Zoller).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Infesting mahogany (Swietenia sp.) and defoliating 3 out of 12 trees at Miami, Dade County. (Hatton, May 26).

ROSE CHAFER (Macrodactylus subspinosus) - RHODE ISLAND - First adult collected in Providence on May 29; also seen in North Providence. (D'Andrea, King). MARYLAND - Adults on multiflora rose at Bowie, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Adults extremely abundant in several sections of Blacksburg, Montgomery County, attacking a wide variety of ornamental plant blossoms. (Tarpley).

A CHAFER (Dichelonyx vicina) - CALIFORNIA - Adults light on ponderosa pines in Burney, Shasta County. (Cal. Coop. Rpt.).

ENGRAVER BEETLES (Ips spp.) - LOUISIANA - Heavy in logging areas of Livingston Parish. (Newsom, Cancienne, Tynes; June 1).

PALES WEEVIL (Hylobius pales) - INDIANA - Damage reported from Jennings County, southeast section; a new county record. (Schuder).

A EUROPEAN SNOUT BEETLE (Phyllobius oblongus) - PENNSYLVANIA - Heavy on silver maple in Crawford County on May 11; det by F. B. Negley. (Adams).

ARBORVITAE WEEVIL (Phyllobius intrusus) - RHODE ISLAND - Adults collected on arborvitae in nursery in Bristol, Bristol County, on May 29. (Veilleux).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Populations light in Ithaca, Tompkins County, larvae nearly full grown. (N.Y. Wkly. Rpt., June 1). RHODE ISLAND - Infested plants apparent statewide. (Sorensen, Mathewson). WISCONSIN - Mines appearing in birch in Outagamie, Marinette, Racine and Waukesha Counties. (Wis. Ins. Sur.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - SOUTH CAROLINA - Very serious on boxwood in Greenville; 200 plants believed lost. (Nettles et al., June 2).

A GALL MIDGE (Dasyneura gleditschiae) - PENNSYLVANIA - Severe on mimosa in Allegheny County. (Udine).

A LEAF MINER (Liriomyza sp.) - ARIZONA - Causing heavy damage to leaves of poplar trees in Phoenix area of Maricopa County. (Ariz. Coop. Sur.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - NEW YORK - Causing widespread damage to Christmas trees in Broome County; increasing over last 2 years. Pine sawflies, probably this species, reported numerous and widespread on Scotch pine plantations in Niagara County. (N.Y. Wkly. Rpt., June 1). MICHIGAN - Practically all larvae in a research plantation of Scotch pine in Ingham County left trees and spun cocoons. Of 572 trees, larval colonies 6-74 per tree with an average of 19.2 in 1964 infestation; 98.2 percent of 5-10 foot trees infested. (Wilson).

SAWFLIES - CONNECTICUT - Larvae of various species continue to feed on pines. (Savos). RHODE ISLAND - Larvae attacking red pine in Hopkington, Washington County, and Johnston, Providence County. (Mathewson, Veilleux). NEW JERSEY - Larvae quite heavy on pines in several areas of State. (Ins.-Dis. Newsltr.). CALIFORNIA - Neodiprion sp. larvae medium on Digger pine in Red Bluff, Tehama County. (Cal. Coop. Rpt.).

ROSE-SLUG (Endelomyia aethiops) - DELAWARE - Present on roses in northern New Castle County. (Burbutis).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - CONNECTICUT - Continues to cause leaf drop of sugar maples. (Savos).

A ROSE GALL WASP (Diplolepis sp.) - RHODE ISLAND - Very common on Rosa rugosa in Charlestown, Washington County. (Howard, Mathewson).

LEAF-CUTTING BEES - OKLAHOMA - Undetermined species caused damage to rhododendron, willow oak, scarlet oak, witch hazel, black gum and black birch in Stillwater area of Payne County, north central. (Okla. Coop. Sur.).

SOUTHERN RED MITE (Oligonychus ilicis) - LOUISIANA - Heavy on azaleas in East Baton Rouge Parish. (Newsom, Cancienne, Tynes; June 1).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - Infesting leaves of rose at Lake Butler, Union County. (Bolls, May 21).

A SPIDER MITE (Schizotetranychus asparagi) - FLORIDA - Moderate on leaves of Asparagus plumosus at a commercial fernery at De Land, Volusia County. (Roberts, May 12).

A LINDEN GALL MITE (Phytoptus abnormis) - OHIO - Heavy infestations present on linden trees in Columbus area of Franklin County, central area. (Triplehorn). SOUTH DAKOTA - Found infesting foliage of linden trees in Freeman, Hutchinson County. Infestations unusually heavy, 30-100 galls per leaf. (Walstrom).

MAPLE GALL MITES - VERMONT - Prevalent on silver maple, causing numerous inquiries. (MacCollom, June 1).

GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) - FLORIDA - Moderately infesting leaves of Codiaeum varigatum (variegated leafcroton) at a nursery in Tampa, Hillsborough County. (Fuller, Apr. 29).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Populations heavy in Plaquemines Parish. (Newsom, Cancienne, Tynes; June 1). WISCONSIN - Reports indicate much activity in counties near Lake Winnebago, the far north and in Chippewa, Dunn, Monroe and Wood Counties. Cool nights kept activity to minimum although Aedes vexans still bothersome in shaded fields in a few southern counties. (Wis. Ins. Sur.). MINNESOTA - During week ending May 30, total of 304 larval collections made. Aedes vexans found in 125, Culex restuans in 98 and Culiseta inornata in 63; 17 species taken. In light-trap collections, 6,442 females taken; 4,593 A. vexans, 1,656 Culiseta inornata and 30 A. cinereus. Total of 18 species collected. In 44 15-minute evening bite collections, 392 females caught; 281 A. vexans, 84 A. sticticus and 10 A. punctor. In 394 5-minute daytime collections, 3,944 mosquitoes collected; 2,778 A. vexans, 1,009 A. sticticus, 60 A. cinereus and 28 A. abserratus. Cool evenings from May 26 through June 4 had tendency to restrict late evening mosquito activity. (Minn. Ins. Rpt.). NORTH DAKOTA - Numbers of Aedes dorsalis ranged 10-15 per animal on cattle in southeast. Infestations spotty. (Noetzel). UTAH - Wet spring increased mosquito problem in many central and northern areas. (Knowlton).

FACE FLY (Musca autumnalis) - GEORGIA - Ranged 16-44 per animal on 2 herds in Rabun County. (Roberts). MISSOURI - Light on cattle in northern area; 1-2 per head. (Houser, Thomas, Wood). WISCONSIN - Not become serious problem yet. Some noted in Dunn, Walworth, Winnebago, Wood, Lafayette, Langlade and Chippewa Counties. Males noted on flowers of wild parsnip in northern Grant County and adults noted feeding at eyes of horses grazing in adjacent field. (Wis. Ins. Sur.). INDIANA - Adult surveys on cattle in southwestern area negative. (Bram). VERMONT - Not yet heavy enough to annoy pastured cattle. (MacCollom, June 1).

HOUSE FLY (Musca domestica) - VERMONT - Populations building up rapidly. (MacCollom, June 1). OKLAHOMA - Light to moderate on cattle in Mayes, Ottawa and McCurtain Counties. (Okla. Coop. Sur.).

HOUSE FLIES - LOUISIANA - Building up rapidly in southern area. (Newsom, Cancienne, Tynes; June 1).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

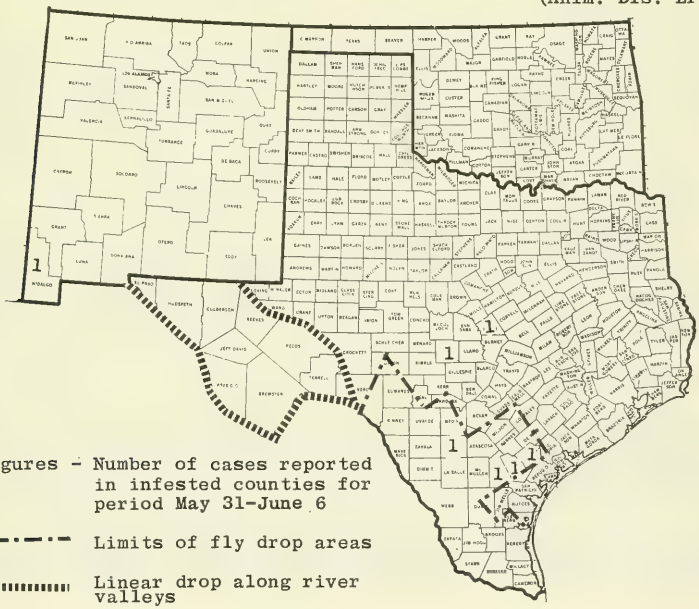
During the period May 31-June 6, the first screw-worm case since December 2, 1963, reported from Hidalgo County, NEW MEXICO. Cochise County, ARIZONA, adjoining Hidalgo County, New Mexico, reported 7 screw-worm cases. Santa Cruz County, Arizona, also reported one screw-worm case. Six confirmed cases were disclosed during this period in TEXAS. Lampasas and Mason Counties are the 2 most northern cases. Frio, Live Oak, Bee and Goliad Counties also reported screw-worm cases. The Republic of Mexico reported 47 cases from the States of Sonora (24), Chihuahua (5), Coahuila (2), Nuevo Leon (2), and Tamaulipas (14). A total of 93,509,450 sterile screw-worm flies was released: 29,444,250 in Texas, 1,048,000 in New Mexico, 2,694,000 in Arizona, and 60,323,200 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963:

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,831	11,602	114	1,621	160.6:1,000	715.7:1,000
1963	177	1,347	213	3,451	83.0:1,000	39.0:1,000
1964	7	78	186	3,415	3.7:1,000	2.2:1,000

* The number of cases not screw-worm is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in numbers of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 31-June 6

Limits of fly drop areas

Linear drop along river valleys

TABANID FLIES - INDIANA - Light populations of deer flies present in wooded areas of Tippecanoe County. (Dobson). GEORGIA - Horse flies ranged zero to light on 16 herds in Spalding County. (Roberts). LOUISIANA - Horse flies averaged 1.7 per animal in herd in Iberville Parish, 0.6 per animal in Acadia Parish and 0.7 per animal in St. Landry Parish. Moderate in East Feliciana and Livingston and heavy in Plaquemines Parishes. Deer flies moderate in Livingston and West Carroll Parishes and heavy in Plaquemines Parish. (Newsom, Cancienne, Tynes; June 1). OKLAHOMA - Tabanus spp. light, ranged 0.5-2 per head, on cattle in Pushmataha and McCurtain Counties (southeast). Moderate in Bryan County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - INDIANA - Populations approaching 20-30 per head on cattle in uncleaned barns in Tippecanoe County. (Dobson). OKLAHOMA - Moderate on cattle in Pushmataha and Mayes Counties. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate to heavy in most areas of State (200-800 per head) and increasing steadily. (Okla. Coop. Sur.). LOUISIANA - Light in Caddo Parish; moderate to heavy in Red River, West Carroll, Livingston, Tangipahoa and East Feliciana Parishes. (Newsom, Cancienne, Tynes; June 1). MISSOURI - Light to moderate on cattle in northern area. (Houser, Thomas, Wood). NORTH DAKOTA - Up to 100 per animal observed statewide. (Noetzel). INDIANA - Adults ranged 20-60 per head on cattle in southwestern section. (Bram). GEORGIA - Averaged 206 per animal in 2 herds in White County, on June 3. Ranged 143-200 per animal in 3 untreated herds and 2-101 in 16 treated herds in Spalding County June 4. (Roberts). VERMONT - Not yet heavy enough to bother pastured cattle. (MacCollom, June 1).

CATTLE GRUBS (Hypoderma spp.) - INDIANA - Adults running cattle in central section. (Dobson). UTAH - Adults running some cattle in Cache County. (Knowlton).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - WYOMING - Large infestation of all stages found on bull north of Wheatland, Platte County. (Pfadt).

AMERICAN DOG TICK (Dermacentor variabilis) - NORTH DAKOTA - Continues to cause concern in Devils Lake area. (Noetzel).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate to heavy (50-200 per head) on cattle in McCurtain, Pushmataha and Choctaw Counties (southeast) and in Bryan (south central) and Mayes (northeast) Counties. This is highest tick population reported in several years in McCurtain County. (Okla. Coop. Sur.).

WOOD TICKS - MONTANA - Very numerous in many counties; dipping vats established in several locations. (Jacobsen, Pratt; May 26). WISCONSIN - Reports of unusually high populations continue in scattered areas of State. (Wis. Ins. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - FLORIDA - Taken in bedrooms at Gainesville, Alachua County, (Esser, May 30) and at Marineland, Flagler County, (Mrs. F. Getha). Caused marks on skin from bites. (Fla. Coop. Sur.).

AN ASSASSIN BUG(Triatoma protracta) - ARIZONA - Light infestations in homes causing concern in Tucson, Pima County. (Ariz. Coop. Sur.).

BED BUG (Cimex lectularius) - CONNECTICUT - Reported in home in Manchester. (Savos).

FLEAS (Ctenocephalides spp.) - IOWA - C. canis and C. felis reported infesting lawns, pets and children; problem expected to increase throughout summer. (Iowa Ins. Inf., June 1).

AN ANT (Formica integra) - VIRGINIA - Severe infestation around home in Norge, James City County. Biting individuals while cutting grass. Nests seen in rotten pine logs and in soil. Det. by M. R. Smith. (Freund, Bryand). SOUTH CAROLINA - Resumed activity in Anderson and Fairfield; demonstrations with bait established. (McDaniel, Boggs).

HOUSEHOLD AND STRUCTURAL INSECTS

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - UTAH - Damaging home at Brigham City, Box Elder County. (Knowlton). CALIFORNIA - Heavy in home in San Andreas, Calaveras County; numerous infestations reported from Sacramento, Sacramento County, and West Sacramento, Yolo County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Stephanopachys substriatus) - CALIFORNIA - Heavy adult emergence from kitchen cabinets in home in Anaheim, Orange County. (Cal. Coop. Rpt.).

CARPENTER BEE (Xylocopa virginica) - CONNECTICUT - Reported in Haddam and Middletown. (Savos). VIRGINIA - Boring holes in outside window blinds in home at Roanoke. (Amos, May 26).

A CARPENTER ANT (Camponotus essigi) - CALIFORNIA - Heavy in studs in garage in Sacramento, Sacramento County; colony occupying enlarged buprestid beetle galleries. (Cal. Coop. Rpt.).

BLACK CARPET BEETLE (Attagenus piceus) - MARYLAND - Adults and larvae infested homes in Glen Burnie, Anne Arundel County, and at Baltimore. (U. Md., Ent. Dept.). RHODE ISLAND - Very heavy infestations in building in Providence. (Veilleux). VIRGINIA - Adults collected under scatter rugs in home at Staunton, Augusta County. (Tarpley, Morse; May 27).

LARDER BEETLE (Dermestes lardarius) - SOUTH DAKOTA - Troublesome in home in Mitchell; general problem in homes throughout eastern area this spring. (Walstrom).

LITTLE HOUSE FLY (Fannia canicularis) - MARYLAND - Adults troublesome in homes near poultry laying house in Baltimore County. (U. Md., Ent. Dept.).

CHEESE SKIPPER (Piophila casei) - MARYLAND - Larvae infested cheese at Baltimore. (U. Md., Ent. Dept.).

SPRINGTAILS - NEW JERSEY - Causing concern among homeowners. (Ins.-Dis. Newsltr.). OKLAHOMA - Undetermined species becoming nuisance in homes in Lawton area, Comanche County. (Okla. Coop. Sur.).

FIRE ANT (Solenopsis geminata) - ARIZONA - Heavy populations invading homes and causing concern in western Pinal County. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - UTAH - Entering number of homes in Salt Lake City-Sandy area, Salt Lake County. Scattered reports elsewhere. (Knowlton).

STORED-PRODUCT INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults and larvae collected from refuse room in Wayne County processing plant on June 1. Infested tuber destroyed and rooms fumigated. No larvae found in potato plants in Monroe County fields. (Newman, Hine).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - FLORIDA - Eleven adults, pupae and larvae collected per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). OKLAHOMA - Light to moderate numbers of this species and others reported from alfalfa and corn in Choctaw County and from alfalfa in McCurtain and Comanche Counties. (Okla. Coop. Sur.).

LADY BEETLES - NEBRASKA - Hippodamia spp. averaged 62 per 100 sweeps in alfalfa in Morrill and Scotts Bluff Counties. (Hagen). Ranged 5-15 per 10 sweeps in

alfalfa in Buffalo and Dawson Counties. (Bergman). WYOMING - Adults of several species remain low in alfalfa and small grain fields in Goshen County; averaged 14-20 per 100 sweeps. (Marks). WASHINGTON - Adults 1-2 or less per sweep in alfalfa in Yakima area. (Halfhill).

A CHALCID (Tetrastichus incertus) - ILLINOIS - Total of 1,900 specimens of this parasite of alfalfa weevil (Hypera postica) released in Hardin, Massac, Johnson, Jackson and Pulaski Counties. (Dysart).

A CHALCID (Tetrastichus sp.) - INDIANA - Two additional releases of this larval parasite of cereal leaf beetle (Oulema melanopa) made in La Porte County, northwest section. (Paschke). Also see CEIR 14(23):567.

PARASITIC BRACONIDS (Aphidius spp.) - WASHINGTON - Two to 16 mummies per 60 paces, 7-32 adults per sweep, on pea aphid in seed alfalfa in Walla Walla area on May 27. (Featherston, Halfhill).

A BUMBLE BEE (Bombus mixtus) - WASHINGTON - First new queen emerged by June 1; cranberry bloom in Pacific County delayed about 2 weeks by continuous cloudy, cool weather (Hook stage at present) and will not coincide with peak of worker population of this main pollinator. (Johansen).

A PUNCTUREVINE WEEVIL (Microlarinus lareynii) - UTAH - Noted in Santa Clara release area of Washington County on May 10 or earlier. (Burnett, Knowlton).

BIG-EYED BUGS (Geocoris spp.) - FLORIDA - G. punctipes adults and nymphs 31 and G. uliginosus adults 4 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

DAMSEL BUGS (Nabis spp.) - FLORIDA - Sixteen adults and nymphs per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). NEBRASKA - Moderately abundant in Keith County alfalfa. (Manglitz). Ranged 5-10 per 10 sweeps in alfalfa in Buffalo and Dawson Counties. (Bergman). WYOMING - Adults averaged 32 per 100 sweeps in alfalfa in Goshen County. (Marks).

GREEN LACEWINGS - MASSACHUSETTS - Numerous eggs observed on corn foliage in Hampden and Hampshire Counties. (Wave). OKLAHOMA - Light populations of Chrysopa spp. present in cotton and alfalfa in Choctaw County and in alfalfa in McCurtain and Comanche Counties (3-5 per 10 sweeps). (Okla. Coop. Sur.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Light on pasture at Sarasota, Sarasota County. (Yax, May 18). This is a new county record. (Fla. Coop. Sur.).

A HARVESTER ANT (Pogonomyrmex badius) - SOUTH CAROLINA - Collected at Camden April 24; only known species of genus known in the State. Det. by M. R. Smith. (Nettles et al.).

A MOUND BUILDING ANT (Formica sp.) - WISCONSIN - Becoming a problem in pastures in Columbia County. (Wis. Ins. Sur.).

A MAY BEETLE (Phyllophaga anxia) - UTAH - Flight continues in northern and central area. (Knowlton).

A BARK BEETLE (Pityophthorus pulicarius) - SOUTH CAROLINA - Male and female emerged from dead loblolly pine twig at Clemson April 30. Det. by D. H. Anderson. (Nettles et al.).

LESSER MEALWORM (Alphitobius diaperinus) - OHIO - Tremendous numbers of larvae and adults breeding in chicken litter in Medina County; becoming nuisance in nearby farmhouse. (Treece).

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 701st meeting of the Hawaiian Entomological Society held May 11, 1964.

Specimens of A FALSE CHINCH BUG (Nysius sp.), new to the Hawaiian Islands, determined provisionally as N. caledoniae Distant, were collected by Dr. J. W. Beardsley at several localities on Oahu during April. It was discovered at Ewa on April 23 and subsequently collected on the University of Hawaii campus, near Wahiawa and at the university's Poamoho Experimental Farm. The bugs have been taken from flower heads of several common weeds of the family Compositae: Emilia sonchifolia, Erigeron canadensis, Pluchea indica, Sonchus oleraceus and Verbesina encelioides. Both adults and nymphs were present in numbers on Erigeron and Sonchus. In several instances, populations were mixed with those of another false chinch bug (Nysius kinbergi Usinger). It is of interest that N. caledoniae is apparently the first immigrant species of Nysius to become established in Hawaii within historical time. (J. W. Beardsley).

AN ARMORED SCALE (Aspidiotus selangorensis Williams and Hall), a recently described species collected in Malaya (Brit. Mus. (Nat. Hist.) Ent. Bul. 13(2):35, 1963) on Adiantum fergusoni (Polypodiaceae), has apparently been established on Oahu for several years. Specimens collected on Mt. Tantalus in October 1958 from the fern, Cylosorus dentatus, and previously considered to be an undescribed Aspitiotus, agree very closely with the description and figure of A. selangorensis. This is a new insect record for the State. Determination by Dr. Beardsley. (J. W. Beardsley).

Larvae of an OLETHREUTID MOTH (Cryptophlebia ombrodelta (Lower)) were observed boring within young terminal growth of 2 small rainbow shower-trees (Cassia sp.) and one small ferntree (Felicium decipiens) on April 15 in Alii Shores Subdivision, near Kaneohe. Numerous young twigs on the affected trees were killed; older growth was not affected. The investigation was made in response to resident complaints. (J. W. Beardsley).

A VINEGAR FLY (Titanochaeta bryani Wirth) was reared from the egg sac of an unknown spider of the family Thomiscidae. Determination by Dr. Elmo Hardy and Ted Suman. Egg cases collected at summit of Wiliwilinui Ridge, Oahu, on April 19 by J. W. Beardsley. The genus Titanochaeta is endemic to the Hawaiian Islands and contains the only drosophilids known to prey upon spider eggs. (J. W. Beardsley).

Several specimens of BEET LEAFHOPPER (Circulifer tenellus (Baker)) found by Ernest Yoshioka on Chenopodium at Kawaihae, Hawaii, on January 23, 1964. This is a new record for the island of Hawaii; species previously collected on Oahu (Feb. 1960), Molokai and Kauai. Identification confirmed by J. P. Kramer. (Mable Chong).

SOUTHERN GREEN STINK BUG (Nezara viridula (F.)) damage to macadamia nuts in Kona, Hawaii, has increased from 0.7 to 13 percent in January-March. Experimental plots of tomatoes on Molokai have had 10 percent losses. (Edward Fukunaga).

AN ARMORED SCALE (Aspidiotus herculeanus (Ckll. and Hadden)) collected November 8, 1963, in some miscellaneous material from green macadamia nuts at Poamoho, Oahu, experimental farm of the University of Hawaii. This constitutes a first locality record for the species on island of Oahu. (C. W. Rutschky, J. W. Beardsley). See CEIR 14(14):283 for earlier collection data on this species.

Two specimens of AN ANTHRIBID BEETLE (Araeocorynus cumingi Jekel) found in dry pods of a jackbean (Canavalia microcarpa) on Monoa Stream at the bridge near the Fisheries Laboratory on April 15 by Eugene Ziegler. Subsequently, 4 specimens were found April 19 by Mr. Shiroma and 2 more on April 26 by Mr. Ziegler. Although these beetles were found in dry pods, no sign of feeding was present. They seemed to be hiding or resting in the pods. No other host material could be found in the vicinity. This constitutes the first established locality record of this beetle in the State. (E. S. Shiroma).

A NITIDULID BEETLE (Carpophilus marginellus Motsch.) was intercepted in quarantine on April 9, 1958, in a pomegranite fruit from Oahu by Herbert Hannagan, and on June 11, 1963, Benjamin Hu intercepted a specimen with orchids from Hilo, Hawaii. This established the first locality records from the State. This beetle was first reported by E. J. Ford at the April 14, 1958, meeting of the Hawaiian Entomological Society. At that time, Mr. Ford reported that although the beetle had been present in Hawaii for at least 9 years, it had never been previously reported due to its resemblance to the other 4 species of Carpophilus known in Hawaii. No locality was given. (E. S. Shiroma).

AN ARMORED SCALE (Pseudaulacaspis major (Cockerell)) was observed heavily infesting a weeping willow treee (Salix babylonica) in the Honolulu Airport garden the latter part of April. The tree was in poor condition; leaves and branches were dying. The bases of every branchlet and leaflet were infested. This constitutes a new host record of this scale insect in Hawaii. (E. S. Shiroma).

ADDITIONAL NOTES

OREGON - FALL WEBWORM (Hyphantria cunea) adults appearing in small numbers in light traps in Salem area, Marion County. (Goeden). ALFALFA WEEVIL (Hypera postica) counts in alfalfa fields in Klamath County reveal very low populations. Surveys of some fields show no larvae, others averaged up to 5 per 10 sweeps. Adults averaged 5 per 100 sweeps; Klamath County had unusually late spring. (Dickason). PEA APHID (Acyrthosiphon pisum) almost nonexistent in Klamath County alfalfa fields June 3. Average less than one per sweep. (Dickason). Populations on seed alfalfa fields in Umapine area, Umatilla County, up to 125 per sweep. (Halfhill). A NOCTUID MOTH (Leucania farcta) appearing in light-trap collections in Marion County week of June 1; up to 50 per night. (Larson). Light-trap collections of VARIEGATED CUTWORM (Peridroma saucia) in Marion and Washington Counties averaged 3 adults per night per trap. (Larson). BLACK CUTWORM (Agrotis ipsilon) averaged 1 adult per night per trap in same counties. (Larson).

LOUISIANA - RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) abundant in meadows and pastures in Jefferson Davis and Webster Parishes. (Newsom, Cancienne, Tynes; June 1).

VERMONT - FIRST CODLING MOTH (Carpocapsa pomonella) emergence observed June 4 at Burlington. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) active in southeast area of State. Continued dry weather will favor EUROPEAN RED MITE (Panonychus ulmi) activity and intensify in areas where heavy populations are present. ALFALFA WEEVIL now found north of Rutland in Pittsford on west side of State and in Woodstock and Quechee on east side. Damage reported from Wells area of Rutland County. FLEA BEETLES active on tomatoes and potatoes. OYSTERSHELL SCALE (Lepidosaphes ulmi) crawlers becoming active. BIRCH LEAF MINER (Fenusa pusilla) injury not so prevalent as in 1963. FACE FLY (Musca autumnalis) more prevalent in northern part of State. (MacCollom).

NORTH CAROLINA - TOBACCO WIREWORM (Conoderus vespertinus) probably species responsible for injured tobacco plants in Montgomery County. Considerable wireworm damage reported in untreated fields (Garris). A BUDWORM (Heliothis sp.) present on tobacco in Wilson County. (Lewis). WIREWORMS reported in CEIR 14(23):590 causing injury in 4 cotton fields determined as C. vespertinus; however, only one field which had poor stand from other causes, suffered any economic damage. Larvae injured seeds and stems of small cotton plants. (Mount). WOOLLY ALDER APHID (Prociphilus tesselatus) heavy on maples at several locations in Gaston County May 27 (Wray); noted also in Bertie, Wake and Gaston Counties. (Robertson, Mount). MAPLE BLADDER-GALL MITE (Vasates quadripedes) present on maples in Pasquotank, Martin and Granville Counties. (Hearn, Brady, Robertson). Larvae of A PHYCITID MOTH (Dioryctria amatella) collected locally in New Hanover County. (Mount). SALT-MARSH MOSQUITO (Aedes sollicitans) lighting at rate of 1 per minute locally in Pamlico County. (Ashton). BOXELDER BUG (Leptocoris

trivittatus) nymphs present in large numbers on boxelder trees in Davidson County, noted also in Washington and McDowell Counties. (Mount). HIDE BEETLE (Dermestes maculatus) larvae infested cured meat in smokehouse in Pitt County. (Jones).

(Weather continued from page 600).

PRECIPITATION: Moderate to locally heavy rainfall fell over the northern half of the Far West. Much of the Columbia Basin received needed rains that fell on as many as 5 days. Several days of showers produced ample to locally heavy amounts from the central Great Plains into Ohio and much of the Eastern States. Recurring showers over southeast Florida all week became more general and spread into Alabama and the Carolinas by the weekend as the season's first tropical disturbance brought welcome rains. Unofficial totals of 8 inches on the 7th were reported from the Conway, South Carolina, area. Miami, Florida, received 6.80 inches for the week, Tampa only 0.01 inch. Pennsylvania received needed rains which were spreading into New England at the close of the period. Severe storms were observed in most areas of the Nation. Hail piled from 6 to 8 inches deep near Crook, Colorado, on the weekend. One-inch hailstones pelted the Lewiston, Idaho, area on the 5th. Hail was also reported from Wisconsin, Georgia, Kansas, Nebraska, Minnesota, Missouri, and Michigan. On the 4th, a tornado struck near Wall, Texas. A service station at Perry, Florida, lost its roof to a twister on the 6th. The same day Jacksonville, Florida, sustained considerable property damage from a tornado. (Summary supplied by U.S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Temperature°F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Caperonia ponsella (cotton soil)	Chorizagrotis auxiliaria (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronia diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege comstockiana (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (army armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																								
Hope 5/28-6/3				0						0	5					7				10				
Kelso 5/28-6/3				0						0	10					0				14				
CALIFORNIA																								
Davis 5/30-6/5				12	5			5	1							11			1	24				Misc.
FLORIDA																								
Gainesville 6/1			BL					11								1			1					
GEORGIA																								
Tifton 5/28-6/3			BL							1	11							0	1					
ILLINOIS (County)																								
Champaign 5/29-6/4	57-75	0.9"		8							2				15	150	1			748			1	
INDIANA (Counties)																								
Posey 5/26-6/1											4			27				1	3	117				
Vanderburgh 5/26-6/1				6							1	0		27		3	7	1	0	16				
Harrison 5/26-6/1											0			0				1	1	22				
Dubois 5/26-30											0			3				1	0	50				
Sullivan 5/26-27											1			9				0	0	2				
Greene 5/26-6/1											0			8				0	0	41				
Jackson 5/26-6/1				8							3	0		13		7	15	0	3	57				
Switzerland 5/26-6/1											1			5				3	2	39				
Franklin 5/26-6/1				7							0	0		19		0	2	1	0	30				
Parke 5/26-6/1											0			16				0	0	84				
Tippecanoe 5/26-6/1				11							0	0		6		4	6	0	0	62				
Jasper 5/26				0							0	0		15		0	0	0	0	6				
KANSAS																								
Garden City 5/22, 25, 27, 6/1				7		449		17			5			5		46	2			15				
Hays 5/23, 26, 28				10		191										38	6			46				
Manhattan #1 5/29-6/5				35		185		5			2			11		220	3			264				
Mound Valley 5/23, 26, 28, 30				2				3						225		27	24			75				
Wathena 5/21, 23-24, 30-6/1				13		58		2			8			6		35	35			57				
MARYLAND																								
Centreville 5/20, 27				22							12	2			110	21			1	7				
Berlin 5/22-6/4				31							3				173	21				64				
MISSISSIPPI																								
Stoneville 5/29-6/5	55-89	0.62"	MV	30			3		2	2	10					203	53		11	189			4	
Stoneville 5/29-6/5	55-89	0.62"	BL	66			5		1	1	15					183	91		9	190			6	
MISSOURI																								
Portageville 5/30-6/5				33							51				0	193				5731				
Columbia 5/21-6/4				12							1				5	15				48				
NEBRASKA																								
Kearney 5/19-25				2		585		2			4					20		1		10				
North Platte 5/21-27				2		3958		12			2					324	1			40				
Ogallala 5/20-26						373		13								29				2				

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Choristoneura auxiliaria (spruce cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feralia diffusa (wheat head armyworm)	Heliothis subflexa (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Lithophane frigidaria (fall armyworm)	Loxostege commistalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Perileucoptera coffeella (white-blotch leafminer)	Prodenia ornitho (spotted cutworm)	Prodenia praseodenia (green armyworm)	Prodenia quadrilineata (four-lined armyworm)	Prodenia sunia (yellow-striped armyworm)	Proteorhinus marginata (vetch bruchid)	Proteorhinus sp. (vetch bruchid)	Pseudaletia unipuncta (armyworm)	Spodoptera ornithogalli (cabbage looper)	Trichoplusia ni (cabbage looper)	Major crop **
NEBRASKA (Continued)																											
Scotts Bluff Expt. Sta. 5/14-20						203		90		5			1495			47							5				
Scotts Bluff Expt. Sta. 5/21-27				1		99		26		2			376			52							6				
NORTH DAKOTA																											
Fargo 5/29-6/5														1									2				
Linton 5/29-6/5														208									8				
OHIO																											
Wooster 6/5	54.2	0.04"		9			6																8				
Columbus 6/5				5			7								3								6				
Reynoldsburg 6/4				3			4								1								3				
SOUTH CAROLINA																											
Clemson 5/16-22								1		3						1	15						4				
Clemson 5/23-29								3		5						2	23				3						
Charleston 6/1-7	61-87	2.97"	BL	8			0	5	0	3	0					29	29	2			1		4			33	
TEXAS																											
Brownsville 5/28-31			6 BL				34	145		374	76		545				2	14			8				202		
Waco 5/30-6/5				78			21	64		110						286	352						335	39	65		
WISCONSIN																											
Platteville 5/27-6/1			BL	5											1	11	2						156				
Mazomanie 5/23-6/1			BL	10											2	1	2						10				
Madison 5/26-6/3			BL	9	2										2	7	2						88				
Middleton 5/26-6/3	32-71		BL	2	0											5							34				
Gays Mills 5/26-6/1			BL		3																						
WYOMING																											
Cheyenne 5/13-19				1		325		22								14							1				

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN New Mexico (State or District) DURING 1963 (Year)

ATTACKING Cotton (Commodity or Crop)

A. Pest or pest complex: Cotton leafworm, bollworm, fleahoppers, lygus bugs, thrips

B. Number of acres[a] produced (From CRS)	No.	190,000
C. Average yield per acre[a] (From CRS)	Units/	695 lbs.
D. Price[b] per unit (lb.)[c] (From CRS)	$/	.30
E. Acres[a] needing control	No.	180,000
F. Acres[a] treated	No.	140,000
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	20
I. Loss in yield, units per acre[a], C x H	Units/	139 lbs.
J. Loss in yield, $ per acre[a], D x I	$/	41.7
K. Loss in quality, $ per acre[a]	$/	6.00
L. Yield loss for all acres[a], (E-F) x I	Units	5,560,000
M. Control cost, $ per acre[a],	$/	10.00
N. Control cost for all acres[a], F x M	$	1,400,000
O. Yield loss for all acres[a], (E-F) x J	$	1,668,000
P. Quality loss for all acres[a], (E-F) x K	$	240,000
Q. Combined control cost and losses, N + O + P	$	3,308,000

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Gerald L. Nielsen

Date March 26, 1964

ATTACKING Alfalfa Hay (Commodity or Crop)

A. Pest or pest complex: Pea aphid, spotted alfalfa aphid, alfalfa caterpillar

B. Number of acres[a] produced (From CRS)	No.	159,000
C. Average yield per acre[a] (From CRS)	Units/	4.5 tons
D. Price[b] per unit (ton)[c] (From CRS)	$/	36.00
E. Acres[a] needing control	No.	8,000
F. Acres[a] treated	No.	1,000
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	.5
I. Loss in yield, units per acre[a], C x H	Units/	.023
J. Loss in yield, $ per acre[a], D x I	$/	.828
K. Loss in quality, $ per acre[a]	$/	.25
L. Yield loss for all acres[a], (E-F) x I	Units	161 tons
M. Control cost, $ per acre[a],	$/	4.50
N. Control cost for all acres[a], F x M	$	4,500
O. Yield loss for all acres[a], (E-F) x J	$	5,796
P. Quality loss for all acres[a], (E-F) x K	$	1,750
Q. Combined control cost and losses, N + O + P	$	12,046

R. Percent loss due to each insect in the complex:

Comment:

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Gerald L. Nielsen

Date March 26, 1964

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 25 June 19, 1964

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823
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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

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Plant Pest Control Division
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Hyattsville, Maryland 20781

Volume 14 June 19, 1964 Number 25

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPERS increasing in California, with major outbreaks possible this year. "Hoppers" ranged 15-30 per square yard in pine ridge areas of Dawes and Sioux Counties, Nebraska, and threatening population exists in small area of western Barber County, Kansas. (pp. 637, 638). Heaviest ARMYWORM infestation in many years evident in southwestern and west central Lower Peninsula of Michigan, and potential of damage exists in Iowa and Minnesota. (p. 638). BLACK CUTWORM continues major insect pest problem to field crops in Iowa and damage reported from Wisconsin and Minnesota. Cutworms also damaging crops in Michigan, Ohio, Indiana, Maryland, Alabama and Alaska. (pp. 638, 639). Egg laying by EUROPEAN CORN BORER reported in Illinois, Wisconsin, Iowa and Maryland, and young larvae noted in Indiana and Delaware. (p. 639). Heavy infestations of CORN LEAF APHID present on sorghum in several Oklahoma counties. (pp. 640, 641).

Considerable adult and larval activity of ALFALFA WEEVIL noted in Washakie and Hot Springs Counties, Wyoming; larval counts high in Weld and Larimer Counties, Colorado; and increased activity reported in other Western States. Larvae also numerous in sections of Northeast and newly emerged adults ravaging second-growth alfalfa in Maryland. (p. 642). Adults of MEADOW SPITTLEBUG reported high in several States. (p. 643, 644). LYGUS BUGS very numerous on alfalfa grown for seed in sections of Idaho and Utah and controls required. (p. 644).

APPLE MAGGOT adult reported June 8 in Michigan; CHERRY FRUIT FLY adult in Orleans County, New York, on June 5; and a WESTERN CHERRY FRUIT FLY in Benton County, Oregon, on June 8. (pp. 646, 647). GYPSY MOTH larvae abundant on cranberry bogs in parts of Barnstable County, Massachusetts. (p. 648).

Recent BOLL WEEVIL survey in caprock area of Texas revealed few overwintered weevils but none above caprock. Activity reported in Mississippi, Arkansas, Tennessee, Alabama and South Carolina, but feeding light. (p. 654). BOLLWORMS also active in most cotton-producing States, and some controls by growers for PINK BOLLWORM expected in Solomon area of Arizona, and present in many fields in Rio Grande Valley of Texas. (p. 655).

Strong potential exists in some areas of Virginia for epidemic of SOUTHERN PINE BEETLE again this year. (p. 657). PINE SPITTLEBUG heavy locally on Scotch pine in Waupaca and Waushara Counties, Wisconsin, and some infestations very heavy on jack pine in Minnesota. Also common in Scotch pine plantations in New York. (p. 658). Populations of a PINE SAWFLY (Neodiprion pratti pratti) increased slightly over 1963 in Virginia, but remained within general defoliation categories. (p. 659). Defoliation of elm trees by ELM LEAF BEETLE reported in sections of Virginia, Arkansas, Oklahoma, Kansas, Utah and California. (p. 660). Populations of ROSE CHAFER spectacular in Kent County, Rhode Island, and feeding on flowering plants in several States from Rhode Island and Virginia to Indiana. (p. 662).

HORN FLY a problem in Bayfield and Oconto Counties, Wisconsin; heavy on unsprayed beef cattle in many southwest Ohio Counties; numbers high in delta counties of Mississippi; moderate to heavy in sections of Oklahoma; and moderate in Washington County, Utah. (p. 664). FACE FLY increasing slightly in Indiana and troublesome in sections of Wisconsin, and adults of CATTLE GRUBS running cattle in Ohio, Michigan, Utah and Wyoming. (p. 666).

CORRECTIONS

See page 668.

DETECTION

HOLLYHOCK WEEVIL (Apion longirostre) recorded in California for first time. (p. 662). New county records of significance were CEREAL LEAF BEETLE (Oulema melanopa) in Parke and Wells Counties, Indiana; Wood and Putnam Counties, Ohio; and Gratiot, Clinton and Washtenaw Counties, Michigan (p. 640); ALFALFA WEEVIL (Hypera postica) in Cross County, Arkansas (p. 642); PEAR PSYLLA (Psylla pyricola) in Summit County, Ohio (p. 646); PALES WEEVIL (Hylobius pales) in Jefferson County, Indiana (p. 658); ELM LEAF BEETLE (Galerucella xanthomelaena) in Rooks and Osborne Counties, Kansas (p. 660); and a MEDITERRANEAN SNAIL (Cochlicella ventrosa) in Santa Cruz County, California (p. 668). The record of the latter snail was the first for the State since 1899 when it was found in Oakland, Alameda County.

CORRECTIONS

See page 668.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 665).

WEATHER OF THE WEEK ENDING JUNE 15

Variable thundershower activity prevailed in most areas; average temperatures over much of the eastern half of the Nation reversed the cool pattern of the previous 2 weeks.

TEMPERATURE: Weekly averages ranged up to 6° above normal from the Ohio Valley into Texas and Oklahoma. Little Rock, Arkansas, with a 7° above normal departure, observed only one daily high less than 96°, as most areas from Texas to the Carolinas were hot and humid all week. Except for northern and extreme coastal sections, the remainder of the Nation east of the Rockies observed from 2 to 4 days of 90° heat. Wagner, South Dakota, sweltered at 102° on the 8th prior to the influx of cool air. Similar temperatures of 104° and 100° set daily records on the 10th at Norfolk, Virginia, and Washington, D.C., respectively. Average temperatures were generally below normal west of a line from the northern Plains to the southern Rockies. At least three stations in the Southwest averaged 8° below normal. Maxima to 90° were observed at very few stations until midweek. Needles, California, recovered from a "cool" 86° on the 9th to a more seasonal 110° on the 14th.

PRECIPITATION: Stormy, showery periods produced rainfall totals exceeding 1 inch over much of the northern Rockies, the Great Plains, the upper and middle Mississippi Valley, the Ohio and Tennessee Valleys, and the Florida Peninsula. Elsewhere over the East rainfall was spotty or nonexistent. Little or no rain fell throughout the Southwest. Many areas in Idaho, Montana, the Dakotas, Kansas, Nebraska, Iowa, Missouri and Oklahoma had locally excessive rains as well; amounts from 5 to 8 inches were quite common. For example, in southwest Missouri, Joplin received over 6 inches in 30 hours, 4 inches of which fell in 6 hours on the 13th. Near Crane, 5,000 turkeys were reported to have been lost in flash floods. Heavy precipitation coupled with melting snow early in the period resulted in flooding and considerable property damage in the northern Rockies, especially Montana. Severe storms took a heavy toll in many areas. Tornadoes were sighted in States from Minnesota to Texas and from Colorado to Michigan and hail fell in all thunderstorm areas. On the 10th, a twister removed 12 cars of a moving freight from the tracks just west of Claflin, Kansas. Claflin also lost the roof to its high school. Hail to 1 inch in diameter covered the ground at Belgrade, Nebraska, and fell in Kansas and Missouri on the 11th. Cotton near Presidio, Texas, was hail damaged that day. On the 12th, a tornado caused considerable damage in the business district of Storm Lake, Iowa. A twister near Sand Springs, Oklahoma, demolished a barn, uprotted trees, and damaged a home on the 14th. Similar destruction occurred near Bloomfield, Iowa, that day. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ALABAMA - Unspecified species extremely heavy and damaging to kudzu in isolated areas of Monroe County; 27-38 per square yard. (Lemons). MARYLAND - Early instars of grasshoppers, probably Melanoplus femurrubrum, moved from grass strip beside highway into edge of field of soybeans and killed seedlings in Talbot County. (U. Md., Ent. Dept.). OHIO - Early instars of M. differentialis collected in grassy areas of southwest; averaged 5 per 50 sweeps. (Lyon). WISCONSIN - Delayed grasshopper hatch evident. Newly hatched nymphs of M. femurrubrum noticeable in few fields of alfalfa in southern part of State. (Wis. Ins. Sur.). MINNESOTA - Some egg hatch of M. femurrubrum occurred in southwest district; most eggs in eye-spot stage with some fully segmented. Third instars, probably M. bivittatus light in Jackson County. Cool weather in northwest and west central districts slowed egg development. Very little hatch occurred. Eggs of M. femurrubrum in segmentation stage in southeast district. (Minn. Ins. Rpt.). NORTH DAKOTA - A nymphal survey conducted in McLean, Mountrail, Williams, Divide, Burke, Renville and Ward Counties showed marginal counts 1-35 per square yard (averaged 5-14). Field counts ranged from less than 1 to 25 per square yard (averaged 1-4). Nymphal development ranged from first through fifth instar, with 25 percent first, 30 percent second, 40 percent third and 5 percent fourth. An occasional fifth instar M. differentialis observed. Dominant species M. bivittatus and M. sanguinipes. (Brandvik). Marginal infestations in Benson, Rolette and Ramsey Counties ranged 1-10 per square yard. Field counts ranged 1-6 (averaged 1-2) per square yard. Nymphal development ranged from first through third instar. Most in second and third instars. Dominant species included M. sanguinipes, M. packardii and M. bivittatus. (Scholl). "Hoppers" 25 per square yard along a roadside near Amidon, Slope County; M. sanguinipes and M. bivittatus dominant species; most in third instar. (Frye). NEBRASKA - Ageneotettix deorum, Amphitornus coloradus and Aulocara elliotti ranged 15-30 per square yard in pine ridge areas in Dawes and Sioux Counties. Infestation ranged 4-25 per square yard of first to third instar A. deorum and second to fourth instar A. elliotti in Beaver Valley area in northwest Sheridan County. M. bivittatus and M. sanguinipes (second to fourth instar) averaged 30 per square yard in margins, draws and field margins in northwest area. Hatch is complete. (Warnke). COLORADO - Second instars of various species very high on cropland in Archuleta County; controls applied. No populations on rangeland at present. (Seaton). KANSAS - Grasshopper populations on rangeland in Jefferson County on May 28 generally low; early instars of Melanoplus spp. and slant-face species dominant; Ageneotettix deorum, Boopedon gracile and M. sanguinipes averaged 4 per square yard locally at Ozawkie. On May 29, extensive rangeland in north central and central areas, including Saline, Ottawa and Dickinson Counties, supported low populations, generally less than 1 per square yard; early instars of Orphulella speciosa and A. deorum most abundant. Rangeland in Riley County supported generally low populations on May 30; increased numbers of first and second instars of Melanoplus spp. dominant, particularly M. bivittatus and M. femurrubrum; M. confusus and M. sanguinipes adults. During period June 1-4 rangeland in south central and western areas generally supported very low populations, usually less than 1 per square yard. Small populations in western Barber County threatening, with numbers up to 10 per square yard; Phlibostroma quadrimaculatum, A. deorum and Opeia obscura dominant. Counties of Sedgwick, Comanche, Clark, Meade, Seward, Stevens, Stanton, Hamilton, Wichita, Scott and Logan showed no threatening outbreaks; slant-face species dominant. (Brusven). Counts in alfalfa in eastern area generally ranged from less than 1 to 3 "hoppers" per square yard. Occasional localized areas with higher counts. Late instars and adults of M. sanguinipes and M. confusus dominant. (Peters). OKLAHOMA - Moderate infestations of several species present on pastures and alfalfa in Okmulgee County, east central area. (Okla. Coop. Sur.). TEXAS - Light hatch of several species underway throughout south plains and panhandle areas. Nymphs range first through fourth instar. Locally heavy and damaging pasture plants in Jefferson County and Guadalupe, Hays and Caldwell Counties. (Tex. Coop. Rpt., Massey, Crocker; June 5). NEW MEXICO - Nymphs averaged 5-30 per 25 sweeps in alfalfa in Bernalillo area, Sandoval County, and Los Lunas area, Valencia County. (N.M. Coop. Rpt.). UTAH - Hatching generally,

but no damage yet noted. Largest hatch observed in Washington Fields, Washington County, near Virgin River. (Knowlton). NEVADA - Nymphal populations of Aulocara elliotti, Camnula pellucida, M. sanguinipes and Oedaleonotus enigma reportedly reduced 75-80 percent in Paradise Valley, Humboldt County, by rain and cold weather. (Del Curto). CALIFORNIA - Medium grasshopper populations on alfalfa in Fresno, Fresno County. Grasshoppers increasing, with major outbreaks possible this year. Populations have been negligible past 3 years, but treatment programs scheduled for Kern, Riverside, Kings, Fresno, Lake, Tehama and Tulare Counties this season. Some treatment already applied. (Cal. Coop. Rpt.). IDAHO - Unidentified species general on over 20,000 to 30,000 acres of range, winter wheat and alfalfa in Orchard, Cold Spring Creek and Indian Cover areas of Elmore County; populations 30-50 per square yard. (Edwards, Evans). ALASKA - M. sanguinipes recently hatched; only second and third instars found. (Washburn).

ARMYWORM (Pseudaletia unipuncta) - MICHIGAN - Heaviest larval infestation in many years evident in southwestern and west central counties of Lower Peninsula; considerable small grain and corn acreage being treated. Few fields in southwestern counties reportedly infested. (Sparks, Caul, Stebbins, Patterson, Hinz, Rowe, Machiele, Hearl, Knisely, Pryor, Bless, Janes). INDIANA - Surveys on wheat in central and east central sections negative. (Bram). ILLINOIS - Larvae varied 1-4 per linear foot in wheat in western area; most larvae pupated. (Ill. Ins. Rpt.). IOWA - Averaged 5-6 per linear foot of drill row in heading wheat in Henry County; stripped leaves and feeding on heads. Large numbers of moths caught in light traps; careful observation of small grains and pastures with heavy grass growth recommended. Treatments may be necessary. (Iowa Ins. Inf., June 8). MINNESOTA - Light trap collections increased sharply in Fergus Falls area; this could be important during next few weeks. (Minn. Ins. Rpt.). TEXAS - Attacking rice in Jefferson County. (Bowling, June 5). Heavy, local infestations on late-planted grain sorghum near Angleton, Brazoria County. (Teetes). MARYLAND - Damaging barley, oats, corn and pastures in Worcester County; moths plentiful at light trap. (U. Md., Ent. Dept.).

BLACK CUTWORM (Agrotis ipsilon) - MINNESOTA - Cutworms, mainly this species, continue a problem on corn in southern half of State. Damage serious but fairly spotty and localized. Stands thinned and portions of some fields completely destroyed. Replanting of damaged fields taking place. Apparently cutworm feeding will continue through June. Control difficult due to dry weather and dry top soil. (Minn. Ins. Rpt.). WISCONSIN - Larval activity continues and damage being reported from number of areas. Individual fields apparently affected, especially those following sod, rather than general infestation. Some treatments applied in Green and La Crosse Counties and few fields in Dane County warrant treatment. Some replanting underway in Green and Waukesha Counties. (Wis. Ins. Sur.). IOWA - Continues major insect problem to field crops. Dry weather over most of State is complicating problem. Even small larvae feeding below surface, usually at junction between moist and dry soil. Apparently, a continuing cutworm problem will exist through June. (Iowa Ins. Inf., June 8). INDIANA - Nearly fully developed larvae causing scattered damage to corn seedlings in northern half of State. (Lehker). OHIO - This species, Feltia subgothica (dingy cutworm) and A. gladiaria (clay-backed cutworm) primary species of cutworms infesting field corn; varying degrees of damage present. Most corn fields infested had new sod plowed under prior to planting. (Holdsworth).

CUTWORMS (undetermined) - ALABAMA - Reported damaging corn in Wilcox, Marengo and Autauga Counties, especially in earlier water covered areas of lowland. (Kirkpatrick, Jones, Farquhar). MARYLAND - Heavy on corn in Worcester County and less so on upper Eastern Shore. (U. Md., Ent. Dept.). MICHIGAN - Continue to cause considerable injury to corn where sod turned under in Lower Peninsula; light injury noted in Menominee County. (Janes, Machiele, Steeby, Butts, Bless, Bowers, etc.).

RED-BACKED CUTWORM (Euxoa ochrogaster) - ALASKA - Cutworms, especially this species, have been destructive for the first time in about 4 years to peas, barley and other grains and some vegetables. (Washburn).

CORN EARWORM (Heliothis zea) - FLORIDA - Lightly scattered on ears of corn at Plymouth, Orange County. (Musgrove, Van Pelt; June 1). SOUTH CAROLINA - Heavier than usual infestation in corn in Hampton and Bamberg Counties. (Nettles et al., June 8). ALABAMA - Considerable damage being reported to corn over Mobile County. (Vickery). DELAWARE - First adults of season collected in blacklight trap on May 30 in Sussex County. (Burbutis, Crossan). GEORGIA - Infestations in whorls of corn ranged 10-25 percent in northwest, north and northeast areas. (Johnson).

FALL ARMYWORM (Laphygma frugiperda) - ALABAMA - Two fields of caley peas and Johnson grass in Montgomery County lightly to heavily infested. Light infestations observed on young corn in Dallas County. (McCay, S. Whatley, et al.). FLORIDA - Lightly scattered on ears of corn at Plymouth, Orange County, on June 1. (Musgrove, Van Pelt).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Some first and second instars noted on early planted corn in southern Kent and Sussex Counties. (Burbutis, Crossan). MARYLAND - First eggs of season at Fairland, Montgomery County, June 9; 4-5 masses per 100 plants. Moths fairly numerous in light trap collections at Centreville and Snow Hill; 65 in week June 3-9. (U. Md., Ent. Dept.). NEW JERSEY - Activity increased; treatment of sweet corn in whorl stage or larger recommended. (Ins.-Dis. Newsltr.). NEW YORK - Eggs hatched on sweet corn at New Paltz, Ulster County, on June 2; moth flight, egg laying and hatching active throughout June 2-5 period in Hudson Valley. (N.Y. Wkly, Rpt., June 8). MICHIGAN - Heavy flight of adults occurred on evenings of June 8 and 9 when 121 specimens taken at a Livingston County blacklight trap; egg laying imminent. (Newman, Janes). INDIANA - First instars noted on corn in Boone County, central area, June 11. (Bram). ILLINOIS - Egg laying underway on corn throughout State; larvae present in some areas. Egg masses varied 0-40 per 100 plants in northwest and west districts. (Ill. Ins. Rpt.). IOWA - Eggs averaged less than 1 mass per 100 plants on June 1, but found when the day-degrees indicated they should be present. (Iowa Ins. Inf.). WISCONSIN - Egg laying commenced in southern counties. (Wis. Ins. Sur.). MINNESOTA - Twenty-four percent emerged and 76 percent pupae in southwest; no egg masses found on corn. Average plant height in southwest 6 inches. In west central district, 40 percent pupae and 60 percent larvae; no emergence observed. (Minn. Ins. Rpt.).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Corn in Brazoria County heavily infested. (Teetes).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - First females of season observed. (Leuck).

STALK BORER (Papaipema nebris) - MINNESOTA - Appearing in corn and small grains, primarily winter rye. Populations appear high for time of year. (Minn. Ins. Rpt.).

CORN ROOT WEBWORM (Crambus caliginosellus) - INDIANA - Larvae causing moderate damage to scattered corn fields in Porter County, northwest section. (Gould). DELAWARE - Larvae injuring corn in areas of Kent County. (Burbutis, Crossan). VIRGINIA - Severely infesting seedling corn locally in Fincastle, Botetourt County (Tarpley, Leonard; June 5), causing damage in large areas of a field of seedling corn in Kenbridge, Lunenburg County (Tarpley, Harding; May 21) and killed over 70 percent of stand in 7-acre field of seedling corn near Castlewood, Russell County (Tarpley, Lewis; June 2).

SOD WEBWORMS (Crambus spp.) - MARYLAND - Damage to seedling field corn continues excessive in upper Eastern Shore fields; second-generation larvae probably present. Corn planted on field that had been in sod for several years. (U. Md., Ent. Dept.).

WEBWORMS (Loxostege spp.) - KANSAS - An occasional larva noted in corn in Jefferson County, northeast; averaged less than 10 larvae per 100 sweeps in alfalfa in eastern area. (Peters).

A FIERY SKIPPER (Hylephila phylaeus) - FLORIDA - This species and Feltia subterranea (granulate cutworm) infesting Bermuda grass on football field at Orlando, Orange County. (DeFoar, June 2).

CEREAL LEAF BEETLE (Oulema melanopa) - WISCONSIN - Special survey conducted in southeastern and eastern part of State; none were found. (Wis. Ins. Sur.). ILLINOIS - Federal-State cooperative survey in 132 oat fields in Cook, De Kalb, Kankakee, Kendall and Marshall Counties, mostly in east and northeast districts, during week ending June 5 was negative. (Lanier). INDIANA - Larvae collected on oats in Parke County on June 3. A new county record. Det. by G. B. Vogt. (Bram). Has been collected in Wells County (a new county record) and in townships outside of regulated area in following counties: Miami, Wabash, Huntington, Allen and Grant. (Favinger). In La Porte and St. Joseph Counties, pupation nearly complete; first emergence of "summer" adults probably occurred around June 10; peak emergence expected between June 25 and July 1. (Wilson). OHIO - Specimens collected from Weston, Jackson, Henry, Middleton and Perrysburg Townships of Wood County; Jackson, Sugar Creek and Union Townships of Lucas County; Monroe Township of Henry County; and Allen Township of Hancock County. Primarily larvae being found in oat fields. (Wood and Putnam new county records). (Stackhouse, Porter). MICHIGAN - Positive find made in Gratiot, Clinton and Washtenaw Counties (new counties). Collections recently taken from following townships: All in Gratiot County; Lebanon, Greenbush, DuPlain, Ovid, Bingham, Bengal, Dallas, Olive, Victor, De Witt, Riley and Westphalia in Clinton County; and Bridgewater in Washtenaw County. Larvae much more generally distributed in oat fields in counties neighboring primary infestation area in Berrien and Cass Counties this season than in 1963. A spray program for "summer" adults is being planned for outlying or relatively isolated spots again this summer; approximately 20,000 acres will be treated twice under the Federal-State suppression program. No "summer" adults had emerged by June 10; eggs still present. (Lovitt, Castro). NEW YORK - Surveys in Livingston County, western area, were negative. (N.Y. Wkly. Rpt., June 8).

BILLBUGS - SOUTH CAROLINA - Unspecified species damaged 15 acres of corn near Denmark, Bamberg County. Damage so complete that soybeans planted. (Nettles et al., June 8). INDIANA - Sphenophorus sp. causing serious damage to scattered corn fields in Decatur County, southeast section. (Gould). MICHIGAN - Adults of Sphenophorus sp. causing injury to corn fields in many Lower Peninsula counties. Larval injury reported on wheat in Osceola and Branch Counties. (Janes, Laser, Hinz, Steeby, Sowerby, Butts, Thompson, Smith).

A WHITE GRUB (Phyllophaga anxia) - NEBRASKA - Causing injury in a few locations in wetland hay meadows in Cherry County. Populations 70 percent second instar and 30 percent third instar. (Jarvis).

A WIREWORM (Melonotus sp.) - INDIANA - Causing slight damage to corn in Decatur County, southeast. (Gould).

CHINCH BUG (Blissus leucopterus) - ALABAMA - Damaging numbers present in Dallas County cornfield; large dead spots appeared. Controls being applied. (Granberry, Shuler). KANSAS - All stages feeding on marginal rows of occasional field of sorghum or late corn adjacent to ripe barley or wheat in eastern area; some plant stunting appearing; less than one percent of fields infested. (Peters). OKLAHOMA - Moderate to heavy infestations reported on sorghum in Mayes and Okmulgee Counties. Light in Ottawa County. (Okla. Coop. Sur.). TEXAS - Widespread, light to medium infestations on grain sorghum in Hunt County. (Turney).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy infestations present in sorghums in Bryan County, south central, and Mayes and Ottawa Counties, northeast. Light infestations, 25-50 per plant, reported from Kingfisher (central)

and Blaine (west central) Counties. (Okla. Coop. Sur.). NEW MEXICO - Light to moderate, spotted infestations on small grains in Albuquerque area, Bernalillo and Sandoval Counties. (N.M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - INDIANA - Adults and nymphs averaged 5 per sweep (maximum of 38 per sweep) on wheat in Tipton, Boone and Clinton Counties, central section. (Bram). Stem mothers infesting almost 100 percent of stems on oats in La Porte and St. Joseph Counties, northwest. (Wilson). WISCONSIN - Averaged 1-3 per sweep. (Wis. Ins. Sur.). MINNESOTA - Populations very low in small grains. (Minn. Ins. Rpt.).

GREENBUG (Schizaphis graminum) - WYOMING - Adults and nymphs averaged 25-40 per 100 sweeps in winter wheat fields of Laramie County. Det. by W. D. Fronk. (Marks). WISCONSIN - Averaged about 1-3 per 10 sweeps. (Wis. Ins. Sur.). MINNESOTA - Populations very low in small grains. (Minn. Ins. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MASSACHUSETTS - Second most abundant leafhopper (Arrastumus ocellaris first) on forage locally in Berkshire County. (Shaw). MICHIGAN - High adult populations evident from sweepings made in oat fields in southwestern area. (Ruppel, Hauke). NORTH DAKOTA - Up to 3 adults per sweep taken from seedling wheat south of Jamestown, Stutsman County. (Frye). WASHINGTON - Adults 16 per 100 sweeps on wheat and 20 per 100 sweeps on red clover in Quincy, Winchester and Moses Lake areas of Grant County. All stages present. Infestation light to moderate. Also occurs on barley and pasture grasses. (Hagel).

SPITTLEBUGS - TEXAS - Unspecified species ranged light to moderate on pastures in Fayette County. (Tex. Coop. Rpt., June 5).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Numerous reports being received from over wide area of State of migrations into grain sorghum and other forage crops. (Texas Coop. Rpt.).

A BLACK PLANT BUG (Irbisia sp.) - IDAHO - Abundant and causing considerable damage to leaves of intermediate wheatgrass plantings in Long Tom and Wood Creek areas of Elmore County. (Edwards).

CICADAS - UTAH - Very numerous on rangeland north of Cove Fort, Millard County. (Knowlton). COLORADO - Tibicen spp. very numerous in Costilla and Alamosa Counties. (Ext. Serv., Williams).

HESSIAN FLY (Phytophaga destructor) - VIRGINIA - Heavily infesting field of wheat in Penhook, Franklin County; wheat about 1.5-2 feet tall. (Amos, Milford, Welch). KANSAS - No infestation found in wheat samples from Saline, Marion, Ellsworth, Dickinson, Reno and Rice Counties. (Somsen).

FRIT FLIES - KANSAS - Very abundant on golf course greens in Wyandotte, Shawnee, Riley and Geary Counties. (Keen, June 3).

MARCH FLIES - TEXAS - Larvae heavy in lawns locally in Jefferson County. (Rhea, June 5).

GARDEN SYMPHYLAN (Scutigerella immaculata) - IOWA - Two new infestations reported from Scott County and found in cornfield near New London, Henry County. (Iowa Ins. Inf., Underwood, Diehl; June 8). OHIO - Three acres of corn observed infested near Lebanon, Warren County. (Ross, Blair).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - General infestation found in all wheat fields examined in northwest, north central, central, west central and southwest districts. Trace damage except for several fields in Sherman and Thomas Counties where 15-25 percent loss of yield expected due to wheat streak mosaic. (Somsen).

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Adults abundant in alfalfa near Pullman, Whitman County; no larval damage observed. (Telford). OREGON - Surveys of Crook County alfalfa show larvae at 5-12 per sweep; adults less than 1 per sweep. (Every). IDAHO - Found in all alfalfa fields and roadside plants from Genesee northward toward Moscow. Severely larval-damaged fields of 1963 plowed. (Futter). NEVADA - Larvae averaged 25-35 per sweep and adults 5-7 per sweep in Fallon, Churchill County. Most females still gravid. (Sellers). UTAH - Alfalfa being cut in Iron and Cache Counties as weather permits to prevent injury. Moderate crop injury noted at Kanab, Kane County. (Knowlton). WYOMING - Considerable adult and larval activity noted in alfalfa in Washakie and Hot Springs Counties; adults averaged 63 per 100 sweeps with highest numbers 275 per 100 sweeps at Tensleep, Washakie County. (Marks). SOUTH DAKOTA - Damage appearing in Lawrence County; larvae 193-385 per 100 sweeps and adults 4-12 per 100 sweeps. Larvae in first to third stages. Adults still ovipositing. (Walstrom). COLORADO - Larvae averaged 1,000 per 100 sweeps on untreated alfalfa in Weld and Larimer Counties; maximum 2,684 per 100 sweeps. Severe damage being observed even in treated fields. (Hantsbarger, Jenkins, Daniels). NEW MEXICO - Larvae, probably this species, averaged 8-12 per 25 sweeps in several fields checked near Albuquerque, Bernalillo County. (N.M. Coop. Rpt.). ARKANSAS - Collected from alfalfa in Cross County, east central area; a new county record and brings to 9 number of counties known to be infested in State. (Ark. Ins. Sur.). INDIANA - Surveys on alfalfa negative in Delaware, Tipton, Boone and Clinton Counties, central and east central areas. (Bram). OHIO - Observations made on regrowth alfalfa in 6 fields in Morgan County, southeast area, indicate much less damage can be expected. (Easterling). VIRGINIA - Larvae severely infesting first-cutting alfalfa in one large field in Shenandoah County. (Tarpley). DELAWARE - Larvae present on second-growth alfalfa; causing only light injury in several areas of State. (Burbutis, Crossan). MARYLAND - Newly emerged adults continuing to ravage second-growth alfalfa in central and eastern areas. (U. Md., Ent. Dept.). RHODE ISLAND - Larvae numerous in alfalfa statewide. (Mathewson, Sheehan, Peabody). MASSACHUSETTS - Pupating and new adults emerging in western area on June 12, larval populations lower. In Berkshire County, peak larval populations of up to 1,417 per 100 sweeps occurred in untreated fields on May 25. By June 3, larval populations had decreased to 1,075 per 100 sweeps. In Hampshire County, larval populations similarly peaked on May 27. Pupae and new adults evident in both counties. There is general and often extensive damage to untreated alfalfa throughout valley counties and Berkshire County. No evidence of resistance to heptachlor observed. (Shaw). NEW YORK - In Ulster County, feeding activity slowed down very rapidly; fields treated in fall of 1963 showing little or no feeding on regrowth. Emergence of new adults about 75 percent complete on June 5. Near Catskill in Greene County, larvae 6-8 per sweep May 28 in untreated first-crop alfalfa; counts 0.5-1 per sweep in alfalfa treated with recommended dosage. In Columbia County, larvae 10-20 per sweep on May 29 in field not treated last fall; alfalfa moderately to severely damaged. In an untreated field of alfalfa in Dutchess County, seeded with oats in 1963, first crop severely damaged and a total loss. Entire field had frosted appearance. Larvae 10-12 per sweep on May 29. (N.Y. Wkly. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Averaged 1 adult per square inch on alfalfa in Sedgwick County; holding back regrowth after first cutting. (Gates).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Peak of adult emergence from duff in uncultivated swales near white clover seed fields, up to 95 per square yard, in emergence cage for week ending June 5; first adults, averaging 2 per 50 sweeps, found in edges of fields June 5, 50 per 50 sweeps in center of fields June 10 and 11; 0-3 white blooms per square yard June 1, 10-40 June 5 and 20-100 June 10 in Moscow area, Latah County. (Johansen, Yunus). WASHINGTON - First adults collected on white clover near Pullman, Whitman County, June 11; 1 per 15 sweeps, 5-30 white blooms per square yard. (Yunus).

CLOVER ROOT CURCULIO (Sitona hispidula) - IOWA - Larvae destroyed 10 percent of soybean stand which followed red clover in Scott County. (Iowa Ins. Inf., Underwood; June 8). ILLINOIS - Has caused injury to soybeans that followed clover plow-down. (Ill. Ins. Sur. Bull.). KANSAS - Present on alfalfa in Sedgwick County. (Gates).

BLISTER BEETLES (Epicauta spp.) - NORTH DAKOTA - E. fabricii and E. pennsylvanica observed in alfalfa in southwest; ranged from a trace up to 2 per sweep; most E. fabricii. Adults observed on alfalfa in Renville and Williams Counties; E. fabricii ranged up to 33 per 10 sweeps and E. pennsylvanica ranged up to 30 per 10 sweeps. (Brandvik, Frye). MINNESOTA - E. fabricii present in most alfalfa in southwest, south central and northwest districts; E. pennsylvanica starting to emerge in northwest. (Minn. Ins. Rpt.). SOUTH DAKOTA - Several species of Epicauta ranged 37-89 per 100 sweeps on alfalfa in Lawrence County. (Walstrom).

PALE-STRIPED FLEA BEETLE (Systena blanda) - MARYLAND - Small numbers on soybeans in Talbot County on June 8. (U. Md., Ent. Dept.). VIRGINIA - Medium adult infestations on soybeans throughout King George County. (Tarpley, Hall).

PEA APHID (Acyrthosiphon pisum) - IDAHO - Beginning to build up on alfalfa in Mountain Home and Hammett areas of Elmore County. Populations general but not yet at economic levels. (Edwards). Cool weather has favored aphid development to extent that many, if not most, first-crop alfalfa seed fields will require an aphidicide added to normal spray program in both Canyon and Owyhee Counties. (Waters). WASHINGTON - Less than 75 percent first and second instars; 2-60 per sweep on regrowth alfalfa recently mowed in Walla Walla and vicinity, Walla Walla County, on June 3; reduced to 7 per 100 sweeps on June 10 due to recent rains. (Halfhill). NEVADA - Light, spotted infestations in Fish Lake Valley, Esmeralda County, alfalfa fields. (Bechtel). UTAH - Moderate in most alfalfa examined in Washington, Iron, Kane, Beaver, Millard and Juab Counties. (Knowlton). NEW MEXICO - Continues to build up in alfalfa in most areas of State. (N.M. Coop. Rpt.). OKLAHOMA - Light on alfalfa in Bryand and Muskogee Counties. (Okla. Coop. Sur.). COLORADO - Populations 20-50 per 100 sweeps on alfalfa in Mesa County (Bulla); 50-100 per 100 sweeps in Crowley County (Jenkins). WYOMING - Increasing in alfalfa in Washakie and Hot Springs Counties; adults and nymphs averaged 3,500 per 100 sweeps. (Marks). SOUTH DAKOTA - Ranged 150-250 per 100 sweeps on alfalfa in Lawrence County. (Walstrom). NORTH DAKOTA - Ranged 5-10 per sweep in southwest and south central areas. (Frye). Up to 200 per sweep found on alfafa in Renville County. (Brandvik). WISCONSIN - Populations remain more or less static in alfalfa; parasitism credited with holding down populations. Examination of regrowth alfalfa in Sauk, Green and Kenosha Counties showed 3-10 per sweep, nearly 10 times population present in first-growth alfalfa. (Wis. Ins. Sur.). INDIANA - Adults and nymphs ranged 11-40 (averaged 23) per sweep on alfalfa in central and east central sections; 10 per sweep in Newton County, northwest. (Bram). MASSACHUSETTS - Populations have been relatively low on alfalfa in western area. (Shaw). RHODE ISLAND - Common on alfalfa statewide. (Mathewson, Sheehan, Peabody).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Populations continue to decline; 8-13 per 10 sweeps in Brodhead area. Winged forms continue at 25-40 percent of population. (Wis. Ins. Sur.). KANSAS - None found in open alfalfa in southeast; 14 per sweep on south-facing roadside embankment in Montgomery County. (Peters). ARKANSAS - Very heavy in one of 8 fields checked in Fayetteville area, northwest; 8-10,000 per 25 sweeps of 5-inch net. Moderate numbers in 1 field and low numbers present in other 6 fields. (Ark. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MASSACHUSETTS - Heavy populations noted in some fields of forage in Berkshire County and occasionally in Hampden County. (Shaw). MARYLAND - Adults swarming from red clover; numbers not excessive. (U. Md., Ent. Dept.). OHIO - Moderate to heavy infestations of new adults found in first-cutting alfalfa throughout southwest; ranged 50-200 per 50 sweeps. Very low populations observed in second-cutting alfalfa. (Lyon). MICHIGAN -

Over 50 percent of population in alfalfa and clover emerged as adults in southwest during week; 25 adults per sweep in some Van Buren County fields. High populations caused considerable dwarfing injury to terminal growth of alfalfa in Van Buren County; other counties reporting injury include Ionia, Muskegon, Tuscola, Sanilac, Osceola and Leelanau. (Hauke, Wilkes, Hearl, Kebler, Sowerby, Butts, Ball). INDIANA - Adults ranged 3-13 per sweep on alfalfa and red clover in Clinton, Delaware, Boone and Tipton Counties, central and east central sections; almost full-grown nymphs averaged less than 1 per 10 stems on alfalfa in Newton County, northwest section, with some adults present. (Bram). WISCONSIN - Adults appearing in alfalfa; counts as high as 5 per sweep taken in Green County. Delayed cutting of alfalfa may tend to contribute to a much higher incidence of adults than normal and possibly an even higher population of nymphs in 1965. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOOPER (Spissistilus festinus) - ARIZONA - Increasing on alfalfa in Yuma, Maricopa and Pinal Counties; averaged 40 per 100 sweeps in Yuma County and 50 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). UTAH - Moderate numbers on alfalfa in Washington County orchards and fields. (Knowlton).

LYGUS BUGS (Lygus spp.) - IDAHO - Required treatments in every first-crop, seed alfalfafield checked in Canyon and Owyhee Counties; nymphs especially numerous. (Waters). WYOMING - Adults averaged 125 and nymphs 220 per 100 sweeps in Washakie and Hot Springs County alfalfa. (Marks). COLORADO - Moderate, 250-300 per 100 sweeps, on alfalfa in Crowley County. (Jenkins). UTAH - Very numerous in some Millard County seed areas; adults 0.5-2 per sweep and nymphs 1.5-5 per sweep in Fillmore-Kanosh area alfalfa seed fields. Controls underway, but weather unfavorable. (Knowlton). NEW MEXICO - Light to moderate in alfalfa statewide. (N.M. Coop. Rpt.). ARIZONA - Increased activity noted in alfalfa in Yuma and Maricopa Counties; averaged 75 per 100 sweeps. (Ariz. Coop. Sur.). NEVADA - Varied 8-22 per sweep on alfalfa hay fields in Fish Lake Valley, Esmeralda County. (Bechtel).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults averaged 4-16 per 10 sweeps on alfalfa throughout State; some nymphs present. Adults also present on some soybeans. (Burbutis, Crossan). ARKANSAS - Ranged 12-20 per 25 sweeps of 5-inch net in 8 alfalfa fields checked in Fayetteville area, northwest; nearly all adults. (Ark. Ins. Sur.).

PLANT BUGS - WISCONSIN - Adults of common species in alfalfa evident and becoming more noticeable in southern counties. Populations remain about same as previously and most nymphs have wing pads. (Wis. Ins. Sur.). OHIO - Late instars and new adults of Adelphocoris lineolatus (alfalfa plant bug), A. rapidus (rapid plant bug) and Leptopterna dolabratus (meadow plant bug) collected in alfalfa, red clover, alsike clover, timothy and orchardgrass in most fields throughout southwest area; populations not at economic levels at present. (Lyon).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - Adults ranged 1-5 per sweep on alfalfa and red clover in Clinton, Delaware, Boone and Tipton Counties, central and east central sections; adults averaged 12 per sweep on alfalfa in Newton County, northwest section. (Bram). MASSACHUSETTS - Beginning to appear on forage crops in western area, but relatively low in numbers. (Shaw). OHIO - Light populations of all stages observed throughout southwest. No economic damage observed in forage fields. (Lyon). WISCONSIN - Nymphs becoming increasingly more noticeable in alfalfa in southern and southeastern counties; "swarming" of adults noted a second time, this on night of June 9 following very strong winds from southwest. (Wis. Ins. Sur.).

A LEAFHOPPER (Errastumus ocellaris) - MASSACHUSETTS - More abundant than in former years on forage crops in western area. Counts 1,417 per 100 sweeps in one field in Berkshire County on June 12. (Shaw).

THRIPS (undetermined) - ALABAMA - Quite heavy on field of peanuts in Escambia County. (Knowles). MARYLAND - Causing minor injury to soybeans and corn in Talbot County; heavy injury to soybeans noted in Worcester County. (U. Md., Ent. Dept.). DELAWARE - Very heavy on some alfalfa and continuing to buildup on soybeans throughout most of State. (Burbutis, Crossan). VIRGINIA - All stages heavily infesting soybeans on several farms near Barboursville, New Kent County (Tarpley, Settle), severely infesting a 40-acre soybean field in Middlesex County (Amos, Edward) and infesting soybeans throughout Essex County (Tarpley, Little). ILLINOIS - Very light silvering noticed on some corn plants in west and northwest districts. (Ill. Ins. Rpt.). OKLAHOMA - Light to heavy, 100-500 per plant, on sorghums in Kingfisher and Blaine Counties. (Okla. Coop. Sur.). TEXAS - Moderate, widespread populations on peanuts in Anderson County. (Texas Coop. Rpt., Stephenson).

THRIPS (Chirothrips spp.) - ARIZONA - Light to heavy infestations occurring in some fields in Yuma County. Controls necessary in a few fields. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - First larvae of season present on alfalfa in one area of New Castle County. (Burbutis, Crossan).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Numbers very low on alfalfa in northwest. (Ark. Ins. Sur.). NEW MEXICO - Larvae averaged 1-2 per 25 sweeps in Bernalillo County alfalfa. (N.M. Coop. Rpt.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ALABAMA - Light infestations appeared in field of soybeans in Monroe County. (Lemons).

SPIDER MITES (Tetranychus spp.) - ARIZONA - Moderate to heavy in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MASSACHUSETTS - First eggs found in Amherst area June 12. Cool weather prevented much egg laying in western area. (Wave). NEW YORK - Heavy flight occurred May 22-24 in eastern area. First entries found on June 5 in Ulster County. (N.Y. Wkly. Rpt., June 8). NEW JERSEY - Controls recommended in mid-June in apple orchards. (Ins.-Dis. Newsltr.). OHIO - Last adult development from overwintered larva emerged June 8 in Wayne County. No fully grown larvae of first generation under bands in northeast section. (Forsythe). MICHIGAN - First larval entries of season observed in Van Buren County June 8. Few found in Kent County June 9. Adult emergence continues in Kent, Genesee, Oakland and Van Buren Counties in cages. Heavy flight in Livingston County evenings of June 8 and 9. (Carpenter, Wooley, Gilmore, Lincoln, Siefert, Newman). INDIANA - Adults of overwintering generation continue to emerge; emergence light and not complicated by adult emergence from currently infested fruit in Vincennes area, Knox County. (Cleveland, June 9). MINNESOTA - Larvae beginning to enter fruit in dooryard and neglected orchards in Minnetonka area. Protection urged. (Minn. Ins. Rpt.). IOWA - Only 2 "strings" found in apple orchards near Mandamin on June 3; none found in orchards near Missouri Valley, Harrison County. (Iowa Ins. Inf.). MISSOURI - No new activity reported; however, enough around to warrant adequate cover in all areas. (Wkly. Rpt. Fr. Grs., June 10). COLORADO - First adult taken in apple orchard in Garfield County June 4. First cover spray posted June 12 in New Castle, Silt and Rifle areas. First cover spray posted for Paonia area, Delta County, June 12. Moths reached peak of 13 per trap in Cedaredge area, Delta County, June 6. (Bulla).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Second-generation adults taken in traps in Vincennes area, Knox County, June 5. (Cleveland). IOWA - Only 1 apple injured in Harrison County orchard near Mandamin; none found in orchards near Missouri Valley on June 3. (Iowa Ins. Inf.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - IOWA - Only one tent noted in apple orchards east of Mandamin, Harrison County, June 3. (Iowa Ins. Inf.).

SPOTTED CUTWORM (Amathes c-nigrum) - OREGON - Feeding on Bartlett pear tree sucker leaves in Jackson County. (Berry).

CANKERWORMS - WISCONSIN - Caused severe defoliation of apple trees in areas of Walworth County. (Wis. Ins. Sur.).

A LEAF BLOTCH MINER (Lithocolletes crataegella) - NEW YORK - Mines showing through upper leaf surfaces on May 29 in eastern area. (N.Y. Wkly. Rpt.).

APPLE APHID (Aphis pomi) - INDIANA - Generally increasing in numbers in Knox County. (Cleveland, June 9). NEW JERSEY - Inspections of apple orchards urged. (Ins.-Dis. Newsltr.). CONNECTICUT - Present and may build up rapidly if not checked. (Savos). MASSACHUSETTS - Building up on water sprouts and succulent terminal growth in western area. (Wave).

ROSY APPLE APHID (Anuraphis rosea) - INDIANA - Problem continues in some areas of Knox County. (Cleveland, June 9). MICHIGAN - Colonies common in some southwestern orchards. (Hauke, Hinz, Wooley, Carpenter).

PEAR PSYLLA (Psylla pyricola) - OREGON - Entering "hard-shell" stage on pears in Jackson County; controls appear satisfactory this year. (Berry). OHIO - Reported for the first time in Summit County, northeast. (Forsythe). MICHIGAN - Adults observed June 9 in Van Buren County. (Hauke).

GRAPE MEALYBUG (Pseudococcus maritimus) - OREGON - Surveys reveal no infestations in Jackson County pear orchards this year. (Berry).

LYGUS BUGS (Lygus spp.) - IOWA - Main cat-facing insect problem in apple orchards in Harrison County; about 1 percent show "stings" on apples. (Iowa Ins. Inf., June 3).

A FRUIT-TREE MITE (Bryobia rubrioculus) - CALIFORNIA - Heavy on pear trees locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Conspicuous in home orchards at Logan and Leeds, Juab County, and at orchard in Hurricane, Washington County. (Knowlton).

A CERAMBYCID BEETLE (Oberea sp.) - VIRGINIA - Larvae medium in apple trees on farm near Pulaski, Pulaski County; trees beginning to die. (Tarpley, Rich).

BROAD-NECKED ROOT BORER (Prionus laticollis) - RHODE ISLAND - Root borer, apparently this species, seriously destroying roots of young apple trees in 2 commercial orchards in Chepachet, Providence County; situation existed for about 2 years. (Mathewson).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - First adult of season emerged in Van Buren County cage June 8; this is an extremely early State record. (Carpenter, Wooley).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - COLORADO - First summer brood emerging in Palisade area peach orchards, Mesa County. (Bulla). MISSOURI - No new twig entries reported. (Wkly. Rpt. Fr. Grs., June 10). INDIANA - Second-generation adults taken in traps in Vincennes area, Knox County, June 5. (Cleveland). NORTH CAROLINA - Injured peaches in Durham County; all trees in one-eighth-acre orchard infested. (Mount).

PEACH TREE BORER (Sanninoidea exitiosa) - MARYLAND - Emerging from base of peach tree in Queen Annes County; moth activity noted around base of tree June 10. (U. Md., Ent. Dept.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - General adult emergence continues from Berrien to Grand Traverse Counties. Some larvae still feeding. (Wooley, Hauke).

BLACK CHERRY APHID (Myzus cerasi) - RHODE ISLAND - Heavy on cherry in Peace Dale, Washington County. (Mathewson). MICHIGAN - Colonies common in some southwestern orchards. (Hauke, Hinz, Wooley, Carpenter).

MEALY PLUM APHID (Hyalopterus pruni) - MICHIGAN - Colonies common in some southwestern orchards. (Hauke, Hinz, Wooley, Carpenter).

CHERRY FRUIT FLY (Rhagoletis cingulata) - NEW YORK - First adult of season noted in cherry orchard in Orleans County June 5. (N.Y. Wkly. Rpt.).

A WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Adult emergence began June 8 in Benton County and June 11 in Marion County. (Every).

DRIED-FRUIT BEETLE (Carpophilus hemipterous) - TEXAS - Locally light on ripening peaches in Denton County. (Turney).

PLUM CURCULIO (Conotrachelus nenuphar) - RHODE ISLAND - Apparently peak activity passed; few jarred from trees in Kingston, Washington County. Intense search failed to reveal any in unsprayed orchards in Exeter, Washington County. Major commercial grower reports very little "stinging" noted in fruit in commercial orcahrds in fruit-growing center of Providence County. (Mathewson). MARYLAND - "Stings" noticeable on apples in Harford County June 11. (U. Md., Ent. Dept.). OHIO - Heavy egg-laying injury noted in unsprayed sour cherry orchard in Wayne County, northeast. (Forsythe). WISCONSIN - Feeding unusually heavy in commercial orchard in Rock County this year. (Wis. Ins. Sur.). IOWA - Only one feeding scar found in apple orcahrds in Harrison County June 3. Caused extremely severe damage to apricots in Calhoun County. (Iowa Ins. Inf., June 8).

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - Controls needed in some apple orchards. (Ins.-Dis. Newsltr.). CONNECTICUT - Present and may build up rapidly if not checked. (Savos). NEW YORK - First-brood larvae found in eastern area May 25. Less than 25 percent of eggs hatched at time. By May 29, large numbers of larvae and protonymphs; also many unhatched eggs. Buildup slower in some orchards in Westchester County than previous week. Hatching in numbers in Ulster County. (N.Y. Wkly. Rpt., June 8). MICHIGAN - Building up in many apple and plum orchards in southwest. (Wooley, Carpenter). INDIANA - Populations in untreated areas of Knox County now in range of 15 mobile mites per leaf. (Cleveland, June 9). MINNESOTA - Ranged 15-30 per leaf in orchard near White Bear Lake. (Minn. Ins. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - RHODE ISLAND - Heavy in orchards in Chepachet, Providence County. (Mathewson). CONNECTICUT - Present and may build up rapidly if not checked. (Savos). MICHIGAN - Adults moving into some cherry, apple and peach trees in southwest area. (Wooley, Carpenter). INDIANA - Populations in untreated areas of Knox County now range up to 10 mobile mites per leaf. (Cleveland, June 9). MINNESOTA - Ranged 15-30 per leaf in orchard near White Bear Lake. (Minn. Ins. Rpt.). IOWA - Very low in apple orchard in Harrison County. (Iowa Ins. Inf., June 3).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on rose and quince in Nicolaus, Sutter County; crawlers heavy in plum orcahrds in Placer County. (Cal. Coop. Rpt.).

PERIODICAL CICADAS (Magicicada spp.) - MISSOURI - Members of Brood IV reported as far south as Vernon County and east as far as Knob Noster, Johnson County. Adults still active. All three species (M. septendecim, M. cassini and M. septendecula) now confirmed for this brood in State. (Wkly. Rpt. Fr. Grs., June 10).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceanus) - OREGON - Larvae in home garden fruit and nut trees appear to be 50 percent more abundant than normal in Benton County; larvae full grown. (Rosensteil).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Locally severe on Lake Emerald grape at Gainesville, Alachua County. (Collins, June 5).

GRAPE FLEA BEETLE (Altica chalybea) - RHODE ISLAND - Feeding evident; larvae collected on grape at Peace Dale, Washington County. (Mathewson, Sorensen).

GRAPE PLUME MOTH (Pterophorus periscelidactylus) - RHODE ISLAND - Heavy on grape in Peace Dale, Washington County. (Mathewson).

A GALL MIDGE (Lasioptera vitis) - VIRGINIA - Probably this species, severely infested 90 percent of grapevines (leaves and stems) in home orchard in Smithfield, Isle of Wight County. (Tarpley, Jones; June 2).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Heavy on grapevines in Edison, Kern County. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - MASSACHUSETTS - Larvae abundant on cranberry bogs in parts of Falmouth, Mashpee and Barnstable, Barnstable County. Larvae collected in small numbers on many bogs in Carver, Wareham and Plymouth, Plymouth County, indicating buildup to outbreak proportions throughout Cape Cod in very near future. (Tomlinson, June 5).

NOCTUIDS - MASSACHUSETTS - Pseudaletia unipuncta and others trapped in numbers in blacklight traps on cranberry bogs. Because of drought conditions, moist cranberry bogs may invite oviposition rather than uplands. More than usual cutworm trouble anticipated on bogs in southeastern area. (Tomlinson, June 5).

BLACK-HEADED FIREWORM (Rhopobota naevana) - MASSACHUSETTS - Less numerous than usual in southeastern area. (Tomlinson, June 5). OREGON - Infestations about normal throughout cranberry-growing areas of Coos County. First and second instars noted on May 26. (Every).

CRANBERRY WEEVIL (Anthonomus musculus) - MASSACHUSETTS - More numerous than in past several seasons and causing concern in Plymouth County bogs. (Tomlinson).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Continues heavy in unsprayed blueberry areas; controls urged. (Ins.-Dis. Newsltr.).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Continues heavy in unsprayed blueberry areas. (Ins.-Dis. Newsltr.). WISCONSIN - First adults caught in Door County blacklight trap on June 9. (Wis. Ins. Sur.).

CURRANT FRUIT WEEVIL (Pseudanthonomus validus) - MASSACHUSETTS - Damaging cultivated blueberries in field in southeastern area; specimens noted on sticky traps in other fields. (Tomlinson, June 5).

LEAFHOPPERS - NEW JERSEY - Sharp-nosed species, which transmits blueberry stunt, now in flight. (Ins.-Dis. Newsltr.).

IMPORTED CURRANTWORM (Nematus ribesii) - NORTH DAKOTA - Larvae feeding heavy on gooseberry foliage near Regent, Hettinger County. (Frye).

TENT CATERPILLARS - UTAH - Infesting gooseberry foliage in Leeds Canyon. (Knowlton).

PECAN APHIDS - UTAH - Making pecan foliage sticky in parts of St. George-Santa Clara and Hurricane-La Verkin areas of Washington County. (Knowlton). NEW MEXICO - Monellia costalis and Myzocallis caryaefoliae continue to build up on pecan trees in Dona Ana and Otero Counties. (N.M. Coop. Rpt.). GEORGIA - Undetermined species light to moderate on pecan in Dougherty County. (Tedders).

PECAN PHYLLOXERA (Phylloxera devastatrix) - ALABAMA - Becoming widespread in Mobile County area. (Bolton, Fairley, Seibels).

PECAN CASEBEARERS (Acrobasis spp.) - GEORGIA - A. juglandis and A. caryae common on pecan in southern area. (Tedders, French). ALABAMA - Isolated damage by A. caryae reported in Escambia, Bullock, Autauga, Lee and other counties. (Teague, Buttram, Kirkpatrick, Marable). TEXAS - Total of 685 nuts checked from trees in Denton County; 32 infested with A. caryae. Orchard previously treated. (Turney). OKLAHOMA - A. caryae moderate on pecan in Choctaw County, southeast. (Okla. Coop. Sur.).

NOTODONTID MOTHS (Datana spp.) - GEORGIA - First D. integerrima infestation of season noted in Dougherty County June 9. (Calcote). TEXAS - Larvae of Datana sp. locally heavy and stripping pecan trees in Hood County. (Hillman).

PECAN BUD MOTH (Gretchena bolliana) - FLORIDA - Scattered on stem of pecan at Wewahitchka, Gulf County. (Albritton, June 4).

HICKORY SHUCKWORM (Laspeyresia caryana) - GEORGIA - Moths emerging in southern area. (Tedders).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Becoming more noticeable on pecans and persimmons in Mobile County. Very few webs noted as far north as Autauga and Montgomery Counties. (Fairley, Bolton, Seibels). GEORGIA - Common on pecan in Worth, Dougherty and Tift Counties. (French, Tedders).

THRIPS (Scirtothrips spp.) - ARIZONA - Continued controls necessary for new growth protection of citrus in Yuma County. (Ariz. Coop. Sur.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Very active in dooryard citrus plantings in Casa Grande area, Pinal County; no predators observed in area. (Ariz. Coop. Sur.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Medium on citrus trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

BROWN SOFT SCALE (Coccus hesperidum) - FLORIDA - Generally light on 10,000 nursery plants of sweet orange but heavy on 5-6 plants; large numbers of adults and crawlers at Babson Park, Polk County. (Keen, June 3).

A SCARAB (Hoplia oregona) - CALIFORNIA - Medium on orange trees in Oroville, Butte County. Adults causing considerable damage to blossoms and fruit set. (Cal. Coop. Rpt.).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Large numbers of eggs noted on citrus in Pinal County; larvae active and adults numerous. (Ariz. Coop. Sur.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - General on leaves of sweet orange at Oklawaha, Marion County. (Graham, June 2).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - New generation adults now hatching on Eastern Shore. Continued heavy populations expected. (Hofmaster). MARYLAND - Adults and larvae moderate on potato in Queen Annes County June 10. Prevalent on tomatoes in Worcester County. (U. Md., Ent. Dept.). DELAWARE - Adults, larvae and eggs common in small field of potatoes and in some large tomato fields in Sussex County. (Burbutis, Crossan). NEW YORK - Hatch started June 4 in Orange County potato fields. (N.Y. Wkly. Rpt., June 8). MICHIGAN - Adults and eggs common in central Lower Peninsula; larvae present in southwest counties. (Beal, Tester, Hinz, Hauke). IDAHO - Adults noted June 2 causing minor damage to volunteer potato plants in grain fields in St. Anthony area, Fremont County. (Gardner).

TUBER FLEA BEETLE (Epitrix tuberis) - COLORADO - Adults ranged 4-10 per 100 sweeps in Milliken area and 0-2 per 100 sweeps in Gilcrest district, Weld County. (Urano).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Third instars present in potatoes in eastern Kent County. (Burbutis, Crossan). NEW JERSEY - Controls recommended on potatoes. (Ins.-Dis. Newsltr.). MASSACHUSETTS - Egg laying curtailed on truck crops in western area due to cool weather. (Wave).

TOMATO HORNWORM (Protoparce quinquemaculata) - DELAWARE - First adults of season collected in blacklight trap in Sussex County May 28. (Burbutis, Crossan).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - No adults taken in blacklight traps nor larvae found in Monroe County. (Newman).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Populations on low matrimony-vine; ranged 0-20 per 100 sweeps in San Luis Valley. (Jenkins). Adults average 2 per 100 sweeps on potatoes in Weld County; controls recommended. (Ext. Serv., Urano). No adults found on lycium nor on potatoes in Mesa County. (Bulla). NEBRASKA - Ranged 0-62 and averaged 23 in 7 locations in Scotts Bluff County on cull piles and Lycium halimifolium. No eggs nor nymphs found on lycium. Few eggs found on cull piles. (Hagen).

POTATO APHID (Macrosiphum euphorbiae) - COLORADO - Colonized on wild rose in San Luis Valley. (Jenkins).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Winged forms trapped at Greeley Station and Eaton, Weld County; colonized on potatoes at Platteville with winged forms appearing. (Berry).

Aphids on Potatoes in Maine - Spring migrants of POTATO APHID (Macrosiphum euphorbiae) in district west of Houlton, Aroostook County, began maturing on swamp rose (Rosa palustris), a primary host, by or before June 5. Corresponding date for GREEN PEACH APHID (Myzus persicae) and BUCKTHORN APHID (Aphis nasturtii) on their primary hosts at Presque Isle was June 8. Potato aphid unusually abundant on swamp rose between Houlton and Sherman Mills, southwestern section of agricultural area. Survey June 8 and 9 revealed colonies of green peach aphid more abundant than in several years on Canada plum (Prunus nigra), the primary host, along eastern side of agricultural area from Caribou to Houlton. Potato plants in some fields began to emerge during week. (Shands).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Very severe in 2-acre planting in Ulster County. Some noted in fields in Oswego-Onondaga-Cayuga County area. Caused about 90 percent loss in 3-acre field of cabbage in Erie County. Active in scattered areas of Niagara County. (N.Y. Wkly. Rpt., June 8). WISCONSIN - All stages present in southeast; considerable damage reported. Some injury to treated seedbeds reported. (Wis. Ins. Sur.).

TURNIP MAGGOT (Hylemya floralis) - ALASKA - Emerging in most favored warm sites, but oviposition not yet widespread. (Washburn).

IMPORTED CABBAGEWORM (Pieris rapae) - WISCONSIN - Full-grown larvae averaged 2 per plant on untreated commercial cabbage planting in East Troy area. (Wis. Ins. Sur.). NEW YORK - Found May 28 in Erie County. (N.Y. Wkly. Rpt.).

DIAMONDBACK MOTH (Plutella maculipennis) - MINNESOTA - Reported on mustard at Rosemont; controls justified. (Minn. Ins. Rpt.). WISCONSIN - Few larvae feeding on commercial field of cabbage in Kenosha County. Pupation underway. (Wis. Ins. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - COLORADO - Reported on cabbage in Weld County. (Urano, Watada). Adults collected in light traps in Alamosa County. (Knopp).

CABBAGE APHID (Brevicoryne brassicae) - UTAH - Very numerous on Jim Hill mustard near New Harmony, Washington County. (Knowlton).

POTATO FLEA BEETLE (Epitrix cucumeris) - MINNESOTA - Reported on rape and mustard research plots at Rosemount. (Minn. Ins. Rpt.).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - IDAHO - Adults average just over 5 per sweep in rape seed fields in Viola, Latah County. (Futter).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Damaging crops in Mobile County. (Seibels, Bolton, Fairley). GEORGIA - Light to moderate on beans in northern half of State. (Johnson). MARYLAND - Adults noted on snap beans in Wicomico County June 8. (U. Md., Ent. Dept.). DELAWARE - Adults abundant and causing heavy feeding injury in field of young lima beans in Sussex County; present to fairly common in some snap beans. (Burbutis, Crossan).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Caused 60 percent loss of stand of 20-acre field of lima beans in Mobile County. (Knight).

PEA WEEVIL (Bruchus pisorum) - IDAHO - Populations in Latah County pea fields much below those encountered in drier conditions. (Futter).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Adults damaged lima beans in small garden next to alfalfa in Montgomery County. (U. Md., Ent. Dept.).

LIMA-BEAN POD BORER (Etiella zinckenella) - SOUTH CAROLINA - Noted in pods of pole beans in Bamberg County. (Nettles et al., June 8).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Destroyed about 10 percent of black-eyed peas in gardens in Grand Bay area, Mobile County. (Bolton, Seibels).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Young larvae fairly common on snap beans and causing noticeable feeding injury in eastern Sussex County. (Burbutis, Crossan).

PEA APHID (Acyrthosiphon pisum) - WISCONSIN - Populations remain static on peas. Parasitism credited with holding population down. Counts in vicinity of 1-4 per 10 sweeps in pea fields; few fields have upward of 3 per sweep. (Wis. Ins. Sur.). IDAHO - Populations in spring and winter peas in Latah County much lower than those found in drier years. (Futter).

ONION THRIPS (Thrips tabaci) - MARYLAND - Damaged onion tops in Wicomico County. (U. Md., Ent. Dept.). UTAH - Moderately numerous and causing light damage to onions at Washington, Washington County. (Knowlton). CALIFORNIA - Medium on onions locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Damage starting to show locally in Orange, Oswego, Onondaga and Cayuga Counties. (N.Y. Wkly. Rpt., June 8). SOUTH CAROLINA - Damaged onions in Oconee County. (Nettles et al., June 8).

ASPARAGUS BEETLES (Crioceris spp.) - NORTH DAKOTA - Large numbers of C. duodecimpunctata noted in garden at Regent, Hettinger County. (Frye). IOWA - C. asparagi noted in Le Mars, Plymouth County. (Iowa Ins. Inf., June 8). RHODE ISLAND - C. asparagi collected in Peace Dale, Washington County. Major grower reports usual seasonal abundance of this species and C. duodecimpunctata on plantings in East Greenwich, Kent County. (Mathewson).

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Large adult flights noted in and around sugar beet fields in Washakie County. Few egg masses noted. (Marks). COLORADO - Moths taken in all light traps in Weld County. Numbers trebled in Winsor area. (Urano). UTAH - Moths very abundant in Delta area of Millard County. (Knowlton).

BEET LEAFHOPPER (Circulifer tenellus) - WYOMING - Survey in Washakie County indicated that control program of spraying weed host plants appeared to be effective. Only 1 specimen found on weed host; none found in sugar beet fields. (Marks). COLORADO - Light to moderate; ranged 0.2-1 per square foot on sugar beets in Mesa County. (Bulla).

SPINACH LEAF MINER (Pegomya hyoscyami) - WISCONSIN - Mines prevalent in field of red beets in Kenosha County; population about same as last season in area. Most larvae full grown on June 9. (Wis. Ins. Sur.).

SYMPHYLANS - COLORADO - Damaging stands of sugar beets in Johnstown and Greeley area, Weld County. (Urano).

CUCUMBER BEETLES - COLORADO - Acalymma vittata damaging cantaloup vines in Otero County. (Schweissing). MINNESOTA - A. vittata problem on melons. (Minn. Ins. Rpt.). OHIO - A. vittata caused severe feeding damage to cucumbers in home garden in Clermont County, southwest. Ranged 8-10 adults per plant. (Lyon). NEW YORK - Some A. vittata noted feeding on vine crops in Erie County. (N.Y. Wkly. Rpt., June 8). ALABAMA - A. vittata and Diabrotica undecimpunctata howardi damaging crops in Mobile County. (Seibels, Bolton, Fairley).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Moderate to heavy on squash in Bixby area, Tulsa County, and in Mayes County, northeast. (Okla. Coop. Sur.). CALIFORNIA - Adults medium on squash vines in Encanto, San Diego County. (Cal. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Slowly increasing; 30-100 per 20 sweeps. Some controls applied to carrot fields. Volunteer, overwintered parsnips in Anoka vegetable fields show symptoms of aster yellows. Such plants may serve as source of virus; destruction of plants very desirable. (Minn. Ins. Rpt.).

A LEAF MINER FLY (Liriomyza pictella) - CALIFORNIA - Larvae and pupae light on cantaloup leaves in Ripley, Riverside County. (Cal. Coop. Rpt.).

PODURID SPRINGTAILS - RHODE ISLAND - Extensive damage to squash seed and seedlings attributed to unspecified species at Scituate, Providence County. (Mathewson).

RHUBARB CURCULIO (Lixus concavus) - VIRGINIA - Adults causing considerable damage to rhubarb; feeding and ovipositing in stems in home garden near Hillsville, Carroll County. (Amos, Tarpley, Collins).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceanus) - NORTH DAKOTA - Larvae working in foliage of raspberry in several southwestern gardens. (Frye).

ROSE CHAFER (Macrodactylus subspinosus) - NEW JERSEY - Began feeding on raspberries and blackberries. (Ins.-Dis. Newsltr.).

STRAWBERRY WEEVIL (Anthonomus signatus) - RHODE ISLAND - Collected on raspberry in Kingston, Washington County. (Mathewson).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - MINNESOTA - Caused severe damage to few strawberry plantings in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Building up on some commercial strawberries in Benton County; 20 percent more abundant in infested fields over 1963. (Rosensteil). WASHINGTON - Heavy on strawberries at Vancouver, Clark County. (Shanks).

MEADOW SPITTLEBUG (Philaenus spumarius) - WASHINGTON - Nymphs moderate to heavy on unsprayed strawberry plants in Vancouver, Clark County. (Shanks).

A STRAWBERRY SAWFLY - IOWA - Larvae still active; noted in Winterset, Madison County. (Iowa Ins. Inf., June 8).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Caused severe damage to small planting of strawberries in Harford County. Few plants nearly dead with production cut considerably June 11. Also noted on strawberries in Wicomico County June 8. (U. Md., Ent. Dept.).

TOMATO FRUITWORM (Heliothis zea) - SOUTH CAROLINA - Damage to pole beans ranged 0-5 percent in Bamberg County. (Nettles et al., June 8). ARKANSAS - Survey of Heliothis spp. on tomatoes conducted; all 110 specimens collected from Ashley County, southeast, determined this species. (Ark. Ins. Sur.). OKLAHOMA - Moderate on tomatoes in Choctaw County, southeast. Egg laying underway in Bixby area, Tulsa County, northeast. (Okla. Coop. Sur.).

CUTWORMS - NEW YORK - Damaged tomatoes, cabbage, asparagus and other crops in Albany County. Active in scattered areas of Niagara County. (N.Y. Wkly. Rpt., June 8). NORTH DAKOTA - Larvae damaged home gardens in southwest area. (Frye). NEVADA - Medium on sugar beets in Fallon, Churchill County. (Spreckles). MISSISSIPPI - Continue damaging in Copiah County. (Young, Bennett).

FLEA BEETLES - CONNECTICUT - Problem on strawberries in Canterbury. (Savos). NEW YORK - Injured tomatoes in Suffolk County. Active in Albany County. Very few active on potatoes in Madison-Oneida County area. (N.Y. Wkly. Rpt., June 8). GEORGIA - Moderate to heavy on tomato, pepper and okra in northern half of State. (Johnson). COLORADO - Unspecified species heavy on cabbage in Weld County. (Urano, Watada).

APHIDS - WASHINGTON - Prociphilus erigeronensis alatae seasonally abundant on sugar beets and other plants in Walla Walla County. (Landis). OKLAHOMA - Undetermined species heavy on tomatoes in Choctaw County, southeast. (Okla. Coop. Sur.). ALABAMA - Various species damaging vegetable crops in Mobile County. (Seibels, Bolton, Fairley). MARYLAND - Myzus sp. averaged 1.5 per leaf on strawberries planted May 7 and sampled June 8 in Wicomico County. Practically absent on others planted May 22. (U. Md., Ent. Dept.). NEW JERSEY - Aphids active on raspberries. (Ins.-Dis. Newsltr.). NEW YORK - Unspecified species very abundant on vegetables in Suffolk County. (N.Y. Wkly Rpt., June 8).

POTATO LEAFHOPPER (Empoasca fabae) - NEW JERSEY - Active on beans in southern area. Controls recommended on potatoes. (Ins.-Dis. Newsltr.).

LEAFHOPPERS - NEW YORK - Quite heavy in lettuce field in Orange County. (N.Y. Wkly Rpt., June 8). NEW JERSEY - Active on raspberries. (Ins.-Dis. Newsltr.).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Damaging crops in Mobile County. (Seibels, Bolton, Fairley).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Damaging crops in Mobile County. (Seibels, Bolton, Fairley).

THRIPS - DELAWARE - Several undetermined species common to abundant in many fields of lima beans and cucurbits in Kent and Sussex Counties. (Burbutis, Crossan). NEW JERSEY - Several reports of damage to snap beans noted in southern area. (Ins.-Dis. Newsltr.). NEW YORK - Evident on some set onions and early seeded onions in Orange County. (N.Y. Wkly. Rpt., June 8).

MAGGOTS - NEW YORK - Most radishes in Oswego-Onondaga-Cayuga County area suffered considerable damage. Appearing in both seed and set onions in Madison-Oneida County area. (N.Y. Wkly. Rpt., June 8). MARYLAND - Infested radishes in Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

TOBACCO INSECTS

TOBACCO THRIPS (Frankliniella fusca) - VIRGINIA - Adults medium and causing concern in 4-acre field of newly set tobacco in Pittsylvania County. (Dominick). All stages light on flue-cured tobacco in field near Kenbridge, Lunenburg County. (Tarpley, Powers).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Moderate on tobacco in Bacon County. (Camp).

TOBACCO BUDWORM (Heliothis virescens) - ALABAMA - Numerous and damaging to tobacco in Butler County. (Morgan).

A HORNWORM (Protoparce sp.) - GEORGIA - Light on tobacco in Tift County. (Myles, Girardeau).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - One overwintered weevil found below caprock in Dickens County during survey for overwintered weevils in Lynn, Garza, Briscoe, Dickens, Floyd and Crosby Counties. No weevils found above caprock. (Texas Coop.Rpt., Rummel, Meisch; June 5). Nearly all areas of Rio Grande Valley reporting infestations; heavy near Rio Grande City. (Deer, June 5). Activity remains light in central and northern areas. Infestations reported spreading from field margins, across fields and into adjacent fields in Rio Grande Valley. Few overwintered weevils collected in Motley, Dickens and Fisher Counties. No overwintered weevils reported above the caprock. (Texas Coop. Rpt.). ARKANSAS - Coming out of hibernation but light in most fields of cotton. (Wkly. Cott. Ins. Rpt.). TENNESSEE - No weevils found feeding on terminal buds in western area. Emergence from hibernation should be complete by June 20 if present weather conditions prevail. (Locke). Peak of emergence from hibernation past; 15 adults captured on flight boards past week. (Thomas, June 9). MISSISSIPPI - Appearing in many areas following showers. (Young, Bennett; June 9). ALABAMA - Live weevils quite common in all areas south of Jefferson County; one live weevil reported in Marshall County. Feeding and egg-laying punctures in most fields where suitable squares formed. Few isolated fields in Montgomery, Dallas, Henry and Elmore Counties averaged 15-22 percent punctured squares, but slow fruiting of cotton resulted in only 2-3 suitable squares per plant in older cotton. Most fields had 1-3 percent infestation. (McQueen). SOUTH CAROLINA - Appearing in all cotton fields except those in uppermost tier of Piedmont; 60 percent of overwintered weevils expected to be in fields by June 13. (Cott. Ltr., June 8). Emergence of overwintered weevils continued fairly heavy in Florence area. However, properly timed treatments holding numbers down. (Taft et al., June 10).

FLEA BEETLES - SOUTH CAROLINA - Present on cotton in Abbeville area. (Cott. Ltr., June 8).

BOLLWORM (Heliothis zea) - ARIZONA - Larvae increasing in Pima County. Controls have been necessary on many acres. (Ariz. Coop. Sur.). TEXAS - Infestations remain low generally in southern area. Eggs and small larvae reported in central and northern areas. (Texas Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Heavy emergence of moths continues from experimental cages at Safford. During past week, 428 moths collected. Some controls measures expected to begin inSolomon area within a few days. (Ariz. Coop. Sur.). TEXAS - Present in many fields in Rio Grande Valley at rate of 10-40 per acre. (Deer, June 5). Total of 18 fields checked for rosetted blooms in Hidalgo County with negative results. (Texas Coop. Rpt.; Page, Espensen).

BOLLWORMS (Heliothis spp., et al.) - ARKANSAS - Eggs and larvae commonly found on older cotton. (Wkly. Cott. Ins. Rpt.). MISSISSIPPI - Small larvae and eggs found in Monroe, Holmes, Washington and Sharkey Counties. (Young, Bennett; June 9). ALABAMA - Infestations increasing in cotton throughout central and southern areas. Adults of H. zea dominant generally, but H. virescens more abundant in Dallas County. Eggs counts vary 0-100 per 100 terminals. Bollworms expected to be much more of a problem as season progresses. (McQueen). GEORGIA - Infestations found in 2 of 18 fields checked; eggs ranged 0-21 (averaged 1) and larvae 0-6 (averaged less than 1) per 100 terminals. (Johnson). First instars 6-8 per 100 terminals in Terrell County; eggs 5 per 100 terminals. (French). SOUTH CAROLINA - Present in Allendale, Clarendon, Jasper, Marion, Marlboro and Orangeburg Counties. (Cott. Ltr., June 8).

BEET ARMYWORM (Spodoptera exigua) - NEVADA - Potential economic infestations declined rapidly and no treatments necessary, with only scattered, early instars still present in Pahrump Valley, Nye County. (Slater). ARIZONA - Increasing in Pinal, Maricopa and Pima Counties. Damage appears light. (Ariz. Coop. Sur.). TEXAS - Populations light in Dickens County. (Meisch, Rummel).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Continues a problem locally. Heavy infestation reported in Escambia County and a 15-acre field in Choctaw County replanted because of extreme damage to stand. (Knowles, Sexton, McQueen).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light infestations occurring in Pima, Pinal and Maricopa Counties; no controls necessary yet. (Ariz. Coop. Sur.).

CUTWORMS - TEXAS - Several isolated fields in central area destroyed by unspecified species. (Texas Coop. Rpt., June 5). SOUTH CAROLINA - Damaging young cotton in Edgefield and Greenwood Counties. (Cott. Ltr., June 8).

APHIDS - NEW MEXICO - Light spotted infestations of aphids, probably Aphis craccivora, found on cotton in fields near Tularosa, Otero County. (N.M. Coop. Rpt.). TEXAS - Light to moderate infestations of A. gossypii present in central area. (Texas Coop. Rpt.). MISSISSIPPI - Present in many cotton fields, but infestations lower than previous Week. (Young, Bennett; June 9). TENNESSEE - Some damage noted in areas of Dyer, Fayette and Obion Counties. (Barrett, Carrell, Martin; June 9).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Causing considerable concern in isolated fields in Tennessee Valley, northern area, and in Dallas County and some other central counties where smaller squares being destroyed in light to heavy numbers. (McQueen). MISSISSIPPI - Reported from few fields of cotton over State. (Young, Bennett; June 9). In delta counties, collected in 21 of 32 fields at average rate of 3 per 100 sweeps in infested fields. (Pfrimmer et al.). ARKANSAS - Infestation levels low. (Wkly. Cott. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in Pinal and Maricopa Counties, but continue light in Graham, Greenlee, Cochise and Pima Counties. (Ariz. Coop. Sur.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Continues to be found along edges of a few cotton fields and in woody areas along roads and ditches in Fresno County. (Stromberg, June 4).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Populations generally light to moderate over most of State, with heavy populations occurring in parts of central section. (Texas Coop. Rpt.). In McLennan and Falls Counties, infestation averaged 27.7 per 100 terminals in treated fields and 46.1 in untreated fields; overall average 32.8 compared with 7.1 corresponding week of 1963. (Cowan et al.). ARKANSAS - Infestation levels low. (Wkly. Cott. Ins. Rpt.). ALABAMA - Causing considerable concern in isolated fields in Tennessee Valley, northern area, and in Dallas County and some other central counties where smaller squares being destroyed in light to heavy numbers. (McQueen).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Continues heavy in Pima, Pinal, Yuma and Maricopa Counties. Lighter populations occur in Graham, Cochise and Greenlee Counties. (Ariz. Coop. Sur.).

FLEAHOPPERS - MISSISSIPPI - Appear to be more numerous in many fields of cotton than at same time in 1963. (Young, Bennett; June 9).

THRIPS - TEXAS - Light to moderate infestations reported from most areas of State week ending June 5; heavy in Briscoe, Floyd and Crosby Counties. Causing damage in northern and western areas week ending June 12. (Texas Coop. Rpt.). TENNESSEE - Building up in Carroll County; heavy in untreated Fayette County fields; damage increasing because of cold weather in Madison County; and damaging in large number of fields in Obion County. (Powell, Carrell, Butler, Martin; June 9). ALABAMA - Have become quite a problem in isolated, young cotton in Autauga, Tuscaloosa and other counties; controls applied in extreme cases. (McQueen). GEORGIA - Light to heavy infestations on cotton in northwest, north and northeast areas. Most plants had 4-5 per plant. (Johnson).

BANDED-WING WHITEFLY (Trialeurodes abutilonea) - ARIZONA - Light infestation found on cotton in Tucson area of Pima County and in Cochise County. (Ariz. Coop. Sur.).

SPIDER MITES - CALIFORNIA - Infestations common throughout Fresno County, but light in Five Points-Huron-Coalinga; Tetranychus atlanticus controlled. (Stromberg, June 4). Heavy populations common throughout Kern County; most infestations seem to include T. atlanticus and either T. telarius or T. pacificus. Cotton growing rapidly and "covering up" established infestations; situation requires close observation during next 2 weeks. Some treatments applied. (Black, June 4). Medium populations of T. telarius on cotton in Clovis area, Fresno County. (Cal. Coop. Rpt.). NEVADA - Infestations of Tetranychus spp. down from 2 weeks ago when some treatments necessary adjacent to alfalfa fields in Pahrump Valley, Nye County. (Slater). ARKANSAS - Buildups occurring in spots within fields. (Wkly. Cott. Ins. Rpt.). TENNESSEE - Present in young cotton and causing damage in some fields. (Thomas, June 9). MISSISSIPPI - Reported from Leflore County. (Young, Bennett; June 9). ALABAMA - No noticeable increase in isolated infested fields in past 10 days. (McQueen). GEORGIA - Heavy around edges of cotton fields in Terrell County. (French). SOUTH CAROLINA - Appearing on cotton in Berkeley, Calhoun, Hampton, Orangeburg and York Counties. (Cott. Ltr., June 8).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - Adult emergence underway as evidenced by following data taken June 9 from Scotch pine planting in Van Buren County: A 25-shoot sample showed 52 percent dead larvae, 12 percent live larvae, 24 percent pupae and 12 percent pupal skins (evidence of adult emergence); thus approximately 50 percent of living population in pupal stage, 25 percent in larval stage and remaining 25 percent in adult stage on that date. Adults easily collected. (Hauke).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Infesting loblolly pine in 3 plantations in Henry County and one in Montgomery County. Larvae infesting 2-3 acre loblolly pine plantation in Spotsylvania County; damage minor. (Va. For. Pest Sur. Rpt., April Sum.).

A PINE TIP MOTH (Rhyacionia sp.) - GEORGIA - Mostly in pupal stage in Athens area, Clarke County, June 10. Peak emergence expected week of June 15. (Yates).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Now feeding in east central district; no heavy infestations noted in area. (Minn. Ins. Rpt.). WISCONSIN - Larvae in third and fourth stages in Polk County and second and third stages in southern Douglas County on June 2. No serious defoliation expected in northwest counties or elsewhere in State. Most larvae in third stage in Marinette County June 4. (Wis. Ins. Sur.).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Treatment of 8,307 acres of jack pine in Douglas County completed May 29. Larvae ranged from third stage to few fifth stage; most in fourth stage at time of treatment. Effects of spraying being followed by personnel of various State agencies. (Wis. Ins. Sur.).

SPRUCE NEEDLE MINER (Taniva albolineana) - IOWA - Causing considerable damage in Sioux City, Woodbury County, and present in small numbers in Harrison County on June 3. (Iowa Ins. Inf., June 8). NORTH DAKOTA - Larvae damaging spruce foliage in southwest and in Esmond area, Benson County. (Frye). IDAHO - Again reported infesting ornamental spruce in Boise, Ada County. (Portman).

LARCH CASEBEARER (Coleophora laricella) - MINNESOTA - Very light this season in area of previous high infestation west of Swan Lake in southwest Aitkin County. (Minn. Ins. Rpt.). WISCONSIN - Adults emerged in Grant County June 1 although few pupae still present. Adult populations abundant in Shawano County. (Wis. Ins. Sur.).

ENGRAVER BEETLES (Ips spp.) - WISCONSIN - Extending egg galleries on June 4 in tops of red pine cut last winter in an Oconto County plantation. Slash from previous year's thinning no longer suitable for beetles, but had produced populations which had left several pockets of dead trees. Numerous unsuccessful attacks observed on green trees. (Wis. Ins. Sur.). VIRGINIA - Killed few shortleaf pines in one tract in Louisa County and 3-10 shortleaf pines on 3 tracts in Halifax County. Attacking few white and Virginia pines in Bath County and shortleaf pines (tops) in Augusta and Rockingham Counties. (Va. For. Pest Sur. Rpt., April Sum.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Bulk of overwintering broods expected to emerge by mid-May. Larvae present in scattered trees on 25-acre tract of shortleaf and Virginia pine in Powhatan County; killing single loblolly pine in King William County. Kill noted in Virginia and shortleaf pine (1-12 trees in 10 spots) in Prince Edward County; suspected of killing shortleaf and Virginia pine in 3 tracts in Henry County. Killed 3 spots of loblolly pine in Accomack County and one spot in Northampton County involving 5-20 trees. Short survey flight in Powhatan and Cumberland Counties completed May 25. Number of small spots with red-topped trees noted; ground check of current beetle activity May 26 showed new attacks on green trees evident, with adult galleries 6-8 inches long. Apparently strong potential exists in some areas for epidemic of this pest again this year. (Va. For. Pest Sur. Rpt., April Sum.).

PALES WEEVIL (Hylobius pales) - INDIANA - Damaging pine in Jefferson County (southeast). This is a new county record. (Schuder).

A WEEVIL (Pissodes affinis) - INDIANA - Attacking red pine stumps and Scotch pine seedlings on Christmas tree plantations in Jefferson County (southeast); pupation 50 percent complete June 5. (Schuder).

PINE BARK APHID (Pineus strobi) - WISCONSIN - First winged forms observed on candles of white pine at Madison, Dane County, on June 2. (Wis. Ins. Sur.). VIRGINIA - Evident on few white pines in single spots in Augusta, Shenandoah and Rockingham Counties; severe on 6 acres of white pine in Henry County. (Va. For. Pest Sur. Rpt., April Sum.).

PINE APHIDS - OREGON - Following species collected from Scotch pine during survey for European pine shoot moth (Rhyacionia buoliana); det. by Dr. A. N. Tissot. Schizolachnus pineti at Salem, Marion County, April 14 and at Portland, Multnomah County, April 20; Cinara pinea at Canby, Clackamas County, April 13, and Cinara medispinosa at Portland on April 20. (Larson).

SPRUCE GALL APHIDS (Chermes spp.) - NEW YORK - C. abietis and C. cooleyi more abundant in State than in 1963. Probably C. cooleyi causing injury to new growth on Douglas-fir Christmas tree and nursery stock. C. abietis galls well formed in Erie County. (N.Y. Wkly. Rpt., June 8). MARYLAND - C. abietis infesting Norway spruce in Baltimore County. (U. Md., Ent. Dept.). OHIO - C. abietis seriously damaging occasional Norway spruce trees in northeast section. (Custer). NORTH DAKOTA - Chermes sp. adults and nymphs noted on spruce in Hettinger, Adams County. (Frye).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Middle-stage nymphs present in spittle masses throughout jack pine range. Some infestations very heavy. (Minn. Ins. Rpt.). WISCONSIN - Heavy, localized infestations reported on Scotch pine in Waupaca and Waushara Counties; nymphs mostly in fifth stage on June 5. (Wis. Ins. Sur.). NEW YORK - Common in Scotch pine plantations; nymphs nearly full grown. Moderate in one plantation in Chemung County; some trees with more than 30-40 nymphs per tree. (N.Y. Wkly. Rpt., June 8).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Heavy, localized infestations reported on Scotch pine in Jackson and Waushara Counties; crawlers noted June 4 in Jackson County but not in Marinette County same date. Few lady beetle larvae present in Jackson County infestation and numerous in Waushara County area stands. (Wis. Ins. Sur.). MINNESOTA - Eggs partially developed in east central district; hatch not expected for at least another 7 days. (Minn. Ins. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CONNECTICUT - Crawlers active on pines. (Savos). IOWA - Eggs all hatched at Sioux City, Woodbury County. Crawlers dispersed and settling. (Iowa Ins. Inf., June 8).

BALSAM GALL MIDGE (Cecidomyia balsamicola) - WISCONSIN - Infestations appear heavy in some Langlade County balsam stands; galls readily discernible on wilting new growth damaged by frost. (Wis. Ins. Sur.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - NEW YORK - Numerous in Scotch pine plantations throughout Erie County. Larvae damaging at several locations in Onondaga, Cayuga and Oswego Counties; in last stages of development in Niagara County; large numbers of larvae present on Scotch and Austrian pines in Madison and Oneida Counties. (N.Y. Wkly. Rpt., June 8). IOWA - Larvae feeding on pines in Christmas tree plantations and on Shimek State Forest in southeast area. (Iowa Ins. Inf., June 8).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MINNESOTA - Adults present and egg laying underway in east central areas as far north as Duluth, mainly on roadside jack pine. Eggs should hatch in about 3 weeks. (Minn. Ins. Rpt.).

JACK-PINE SAWFLY (Neodiprion pratti banksiannae) - MINNESOTA - Larvae in middle instars in east central and northeastern districts. Scattered areas show light defoliation of older needles. (Minn. Ins. Rpt.).

A PINE SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Populations across State increased slightly over 1963, but remained within general defoliation categories as predicted by February egg survey. Male larvae dropping to pupate in Farmville area May 5. Larval feeding reported throughout Waverly district on shortleaf, Virginia and loblolly pines; larvae noted for first time on loblolly and Virginia pines near Cobham Wharf, Surry County, and small outbreaks noted in south central Greensville County and in loblolly pine plantation east of Emporia in that county. Larvae well distributed over western portions of Goochland and Powhatan Counties; young larvae causing 3-5 percent defoliation of 5 Virginia pines on stand in Spotsylvania County. Light to medium in parts of Halifax, Mecklenburg and Prince Edward Counties; present throughout Farmville district. Noticeable increase in activity over past year noted in Cumberland County and most other counties in district. Apparently most severe in Mecklenburg County where scattered areas of total defoliation noted. Continues light but noticeable on Virginia pine in King George, Westmoreland, Richmond, King and Queen, and Essex Counties, with severe defoliation limited to few trees per spot. (Va. For. Pest Sur. Rpt., April Sum.). Sum.).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - Adults still laying eggs in central, east central and northeastern districts. No larvae yet noted, but should appear soon. (Minn. Ins. Rpt.).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Larvae mostly in middle stages, with some early instars still present. No heavy plantation infestations noted. (Minn. Ins. Rpt.).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Scattered, light defoliation reported in stands from eastern Sawyer County to Lincoln County. (Wis. Ins. Sur.).

SPIDER MITES - NEW JERSEY - Heavy on ornamentals in several areas of State. (Ins.-Dis. Newsltr.). NEW YORK - Oligonychus ununguis reported serious in large block of Japanese black pine. (N. Y. Wkly. Rpt., June 8). NORTH DAKOTA - Some damage to spruce by Tetranychus telarius observed in southwestern areas and in Esmond area of Benson County. (Frye).

AN ERIOPHYID MITE (Nalepella tsugifolia) - NEW YORK - Widespread, abundant and active on hemlock in southeastern part of State. (N.Y. Wkly. Rpt., June 8).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - WISCONSIN - Defoliation light and scattered in Ashland, Price, Rusk, Sawyer and Langlade Counties. (Wis. Ins. Sur.).

A LEAF ROLLER MOTH (Sparganothis acerivorana) - WISCONSIN - Larvae nearly full grown; many parasitized in western Menominee County, where rolled leaves on hard maple numerous in scattered areas on June 4. Number of rolled leaves appeared more numerous than in 1963. (Wis. Ins. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - NEW YORK - Numbers appear to be lower this season in Erie County; incidence low in Livingston County, and appear less numerous than last few years in Madison and Oneida Counties; also low in Westchester County. (N.Y. Wkly Rpt., June 8). WISCONSIN - Few nearly full-grown M. disstria larvae reported from Marathon County, although no defoliation evident in area. (Wis. Ins. Sur.). COLORADO - M. fragile adults emerging and laying

eggs and M. disstria larvae numerous on cottonwood, willow, apple, hawthorn, plum, locust and other shade trees in Larimer County. (Thatcher, Daniels). UTAH - M. fragile moths flying; larval damage to cottonwood and willow has ceased. (Knowlton).

CANKERWORMS - NORTH DAKOTA - Larval activity on various trees and shrubs continues, but reduced in most areas. (Frye). SOUTH DAKOTA - P. vernata defoliating box-elder and elm trees in Lawrence and Meade Counties. Pupation beginning in Spearfish. (Walstrom). WISCONSIN - Larval development of Paleacrita vernata and Alsophila pometaria nearly complete in Columbia and Marinette Counties on June 5. Much evidence of parasitism and predation by wasps, lady beetle larvae and adults of Calosoma calidum (fiery hunter) observed. Defoliation patchy throughout infested area; varied from very light to complete. Few larvae found in most hardwood areas over State. (Wis. Ins. Sur.). NEW YORK - P. vernata serious in East Aurora and Orchard Park, Erie County. (N.Y. Wkly. Rpt., June 8).

SATIN MOTH (Stilpnotia salicis) - MASSACHUSETTS - Heavy on large cottonwood tree in West Springfield, Hampden County; tree completely defoliated and many larvae crawling on houses. (Wheeler).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae of concern to homeowners in Montville vicinity, New London County. (Savos).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - COLORADO - Larvae infesting elm, willow and hackberry in Larimer County. (Thatcher). NEVADA - Light, spotted infestations noted on elms in Reno, Washoe County. (Horton).

ELM LEAF BEETLE (Galerucella xanthomelaena) - CALIFORNIA - Adults heavy on elms in Merced, Merced County. (Cal. Coop. Rpt.). UTAH - Severely defoliating few elms at St. George, Washington County. (Knowlton). NEW MEXICO - Egg clusters very abundant on Chinese elm in Albuquerque, Bernalillo County; beginning to hatch. (N.M. Coop. Rpt.). OKLAHOMA - Moderate to heavy in Ottawa and Mayes Counties (northeast), Choctaw County (southeast), and Payne County (central). (Okla. Coop. Sur.). KANSAS - Up to 10 eggs per leaf and first, second and third-stage larvae noted on Chinese elm in Rooks County (north central). Counts of 1-4 larvae per leaf noted on same host in Osborne County. These are new county records. Counts of 2-6 larvae and/or eggs per leaf noted on Chinese and American elms in Barton County (central); some younger Chinese elms severely affected. (Martines, June 5). Larvae range 0-6 per leaf in eastern part of State, with heavier infested trees showing considerable damage. (Peters). ARKANSAS - Heavy in most areas; some trees in Hot Springs area (southwest) nearly defoliated. Most larvae of first generation have moved down trees to pupate. (Ark. Ins. Sur.). VIRGINIA - Larvae medium locally on elm leaves in Norfolk; all stages present. (Sims). Eggs and few adults noted May 5 at Farmville, Prince Edward County; adults numerous in Brunswick County April 23. (Va. For. Pest Sur. Rpt., April Sum.). NEW YORK - Eggs not yet hatching at Ithaca. (N.Y. Wkly. Rpt., June 8).

BRONZE BIRCH BORER (Agrilus anxius) - MARYLAND - Adults active in Montgomery County. (U. Md., Ent. Dept.). MINNESOTA - Adults beginning to emerge in east central and northeastern districts. (Minn. Ins. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEW YORK - Adult tunnels constructed; approximately half of potential eggs laid. (N.Y. Wkly. Rpt., June 8). IOWA - Large numbers noted in flight at Davenport May 25-27; had emerged from elms killed by Dutch elm disease in 1963. (Iowa Ins. Ins.).

ELM LEAF APHID (Myzocallis ulmifolii) - WASHINGTON - Severely damaging elm at Spokane, Spokane County. (Senske). NEW MEXICO - What is probably this species, heavy on American elms at Alamogordo, Otero County; honeydew heavy on sidewalks. (N.M. Coop. Rpt.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - IOWA - Galls abundant on petioles of poplar leaves in Harrison, eastern Pottawattamie, Taylor, Webster and Warren Counties; breaking open to release swarms of winged females. (Iowa Ins. Inf., June 8). VIRGINIA - Heavy on petioles of Lombardy poplar leaves at a location in Pulaski, Pulaski County. (Tarpley, Neel; June 5).

WOOLLY ALDER APHID (Prociphilus tessellatus) - GEORGIA - Numerous on maples in Atlanta area. (Blasingame). NORTH CAROLINA - Infesting maple at a location in Orange County. (Mount). Reported from many locations throughout Piedmont area from May 28 to June 8. (Wray). VIRGINIA - Severe on maples at locations in Blacksburg, Montgomery County (June 4), Drewryville, Southampton County (June 3), and Smithfield, Isle of Wight County (June 3). (Tarpley, Davis, Stith). Adults noted in flight at Prince George, Prince George County. (Amos, Harris, June 5).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NORTH DAKOTA - Heavy rosetting of terminal twig foliage observed on elm in Esmond area of Benson County. (Frye).

WOOLLY ELM APHID (Eriosoma americanum) - WYOMING - Large populations noted on American elms at Worland, Washakie County. Det. by W. D. Fronk. (Marks). UTAH - Conspicuously curling elm leaves at Fillmore, Millard County. (Knowlton).

PERIODICAL CICADAS (Magicicada spp.) - OKLAHOMA - Large numbers emerging in north central and northeastern areas. (Okla. Coop. Sur.). KANSAS - M. septemdecim very numerous and apparently feeding on oak, mulberry and elm in Pottawatomie County (northeast). (Kauffield). Observed or reported from following additional eastern counties: Lyon, Greenwood, Elk, Chautauqua, Labette, Coffey, Osage, Wabaunsee, Riley, Johnson and Shawnee. (Peters). NEBRASKA - M. septemdecim adult activity common in scattered locations from Cass County south to Kansas line in counties bordering Missouri River. (Bergman).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW YORK - Abundant on English elm in Ithaca area where not evident in past years. (N.Y. Wkly. Rpt., June 8).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - OHIO - Becoming conspicuous on maple trees. (Courtright, Blair).

WALKINGSTICK (Diapheromera femorata) - WISCONSIN - Newly hatched nymphs emerging from grassy ground cover in Marinette County June 4. Most numerous on undersides of leaves of young oak seedlings just above grass level; some nymphs on lowermost leaves of small trees in area. None observed more than 8 feet above ground. (Wis. Ins. Sur.).

A GALL MIDGE (Contarinia canadensis) MARYLAND - Galls noted on ash at Lutherville, Baltimore County, on May 27, and at Bel Air, Harford County, June 8. (U. Md., Ent. Dept.).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Damage very spotty in Westchester County; ranges light to severe. Very active in Madison and Oneida Counties; first damage light in Onondaga, Cayuga and Oswego Counties. Becoming apparent in Erie County, but apparently not so heavy as in previous years. (N.Y. Wkly. Rpt., June 8). RHODE ISLAND - Apparent statewide; causing some comment. Many mines now empty. (Mathewson).

ELM LEAF MINER (Fenusa ulmi) - NEW YORK - Abundant on English elm in Ithaca area. (N.Y. Wkly. Rpt., June 8).

A SAWFLY (Profenusa canadensis) - WISCONSIN - This and other leaf mining species abundant in hawthorns in southern counties; larvae nearly full grown. (Wis. Ins. Sur.).

ELM SAWFLY (Cimbex americana) - NORTH DAKOTA - Adults on elm in Bowman area, Bowman County. (Frye).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - CONNECTICUT - Constitutes a problem at Sharon, Storrs and Coventry. (Savos).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Heavy on maple leaves at locations in Drewryville, Southampton County (June 3); Charlottesville, Albemarle County (June 3); and Spotsylvania, Spotsylvania County (June 8). (Tarpley, Davis, Kash). NORTH CAROLINA - Infesting maples at locations in Randolph, Wake, Granville, Johnston and Caldwell Counties. (Wray, Mount).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Noted in Berkshire County June 3. (Shaw). Outbreak numbers occurring in cemetery at Wareham, Plymouth County; large numbers congregating on blooms of geranium and other flowers. (Tomlinson). RHODE ISLAND - Reported from Peace Dale and Westerly (Washington County), Covington and Warwick (Kent County), and Albion (Providence County). Greatest abundance apparently in Kent County, where populations described as spectacular. Numbers apparently much lower in Newport County. (Mathewson, Sorensen, Hannah, Veilleux, Peabody). CONNECTICUT - Adults emerged; feeding on many flowers. (Savos). VIRGINIA - Adults abundant on peonies and grapevines in Monterey, Highland County. (Tarpley, Shepherd, June 5). INDIANA - Adults causing heavy damage to peonies in Lake (northwest), Elkhart (northeast) and Wabash (north central) Counties. (Lehker). MICHIGAN - Adult emergence and feeding injury general in southern and central Lower Peninsula counties. (Hoffman, Kendeigh, Hinz, Thompson, Steeby, Lund, Machiele, Siefert, Wooley, Carpenter).

A SCARAB (Hoplia callipyge) - CALIFORNIA - Adults heavy on roses in Livingston, Merced County; scattered, local infestations present in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

ROSE CURCULIO (Rhynchites bicolor) - NORTH DAKOTA - Heavy adult damage to Hansa rose noted in Esmond area, Benson County. (Frye).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - CONNECTICUT - Adults appearing. (Savos). NEW YORK - Serious infestation reported in 6,000 grafted Taxus sp. liners. (N.Y. Wkly. Rpt., June 8). OHIO - Adult emergence beginning. Heavy numbers caused 50-percent loss of yew (Taxus sp.) near Napoleon, Fulton County (northwest). Primarily adults noted at Painesville, Lake County (northeast). (Walker).

HOLLYHOCK WEEVIL (Apion longirostre) - CALIFORNIA - Heavy on hollyhock in Shingle Springs, El Dorado County. Collected May 28 by A. Boeding. Det. by W. Simonds. This is a new State record. (Cal. Coop. Rpt.). MARYLAND - Adults common on flower buds of hollyhock at College Park, Prince Georges County. (U. Md., Ent. Dept.).

SHOT-HOLE BORER (Scolytus rugulosus) - GEORGIA - Heavy in limbs and trunks of Japanese cherry trees in Jackson County. (Welborn).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - NORTH DAKOTA - Moderate to heavy feeding on caragana reported from southwest. (Frye).

AZALEA LEAF MINER (Gracilaria azaleella) - CALIFORNIA - Heavy on azalea growing stock in Chico, Butte County, and in Bakersfield, Kern County. (Cal. Coop. Rpt.). ALABAMA - Adults noticeable about ornamentals over Mobile County area. (Fairley, Bolton, Seibels).

IRIS BORER (Macronoctua onusta) - NORTH CAROLINA - Infesting 300 varieties of iris in garden in Sampson County. Det. by D. A. Mount. (Heath).

BAGWORM (Thyridopteryx ephemeraeformis) - INDIANA - Hatching continues throughout State. (Clark). ILLINOIS - Hatching occurred in southern and central areas; will be complete in northern section within next 2 weeks. (Ill. Ins. Sur. Bull.). OKLAHOMA - Infesting evergreens in Okmulgee County (east central). (Okla. Coop. Sur.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Defoliating mimosa in Mobile County. (Seibels).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ALABAMA - Adults noticeable about ornamentals over Mobile County area. (Fairley, Bolton, Seibels).

EIGHT-SPOTTED FORESTER (Alypia octomaculata) - MARYLAND - Larvae feeding on ivy at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Infesting chrysanthemums in Nash County. (Mount).

APHIDS - ALASKA - Numerous species appearing in large numbers, mainly on ornamentals around homes. (Washburn). CALIFORNIA - Neophyllaphis podocarpi medium on podocarpus nursery stock in Cupertino, Santa Clara County. (Cal. Coop. Rpt.). UTAH - Aphis nerii light on oleander in St. George-Santa Clara area of Washington County. (Knowlton). NEW JERSEY - Unspecified species heavy on many shade trees, shrubs and flowers. (Ins.-Dis. Newsltr.). RHODE ISLAND - An undetermined species damaging privet in Newport, Newport County. (Peabody). Aphis spiraecola active on spirea in Kingston, Washington County. (Kerr).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - MASSACHUSETTS - Injury becoming increasingly noticeable on aralia, Vinca minor and zinnia in Amherst area, Hampshire County. (Wave).

LACE BUGS - NEW JERSEY - Heavy on andromeda, azaleas and rhododendrons in central counties. (Ins.-Dis. Newsltr.). NEW YORK - Infesting andromeda on Long Island and causing some damage; approaching adult stage. (N.Y. Wkly. Rpt., June 8).

A FLATID PLANTHOPPER (Metcalfa pruinosa) - ALABAMA - Few adults noted on ornamentals over Mobile County. (Fairley, Bolton, Seibels).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CONNECTICUT - Crawlers active; common on lilac, rose, peony, pachysandra and many trees and shrubs. A problem in Winsted and Danbury. (Savos). NEW YORK - All eggs not yet hatched at Ithaca; perhaps delayed by recent cool weather. (N.Y. Wkly. Rpt., June 8). WISCONSIN - Crawlers emerging from mother scales in Rock County; populations very high on few hawthorns in area. Report from Sauk County indicated heavy infestations on ornamentals with treatment required. (Wis. Ins. Sur.). COLORADO - Eggs hatching on elm in Larimer County. (Thatcher).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Light on Quercus sp. and Buxus sp. at Barberville, Volusia County, June 5. (Roberts). These are new Florida Department of Plant Industry host records for species. (Fla. Coop. Sur.).

COCCIDS - NEW YORK - Lecanium corni infesting thornless locust and flowering plum in Schenectady County; last year's females have laid eggs. One of chief problems in Nassau County. (N.Y. Wkly. Rpt., June 8). MARYLAND - Pulvinaria sp. noted on numerous dogwoods in Prince Georges County; eggs will soon hatch. Eggs of Ceroplastes sp. on holly at Cheverly ready to hatch. Unaspis euonymi crawlers settled on leaves of euonymus at University Park and at Riverdale. (U. Md., Ent. Dept.). NORTH CAROLINA - Lepidosaphes camelliae infesting camellia at a Durham County location. (Mount). FLORIDA - Pseudaulacaspis pentagona severe on stem of goldenrain-tree (Koelreuteria sp.) at Orange Park, Clay County, June 1. (Collins). INDIANA - Lecanium fletcheri crawlers emerging in Hendricks County (central). (Clark). TEXAS - Moderate, local populations of U. euonymi damaging euonymus in Denton County. (Turney). CALIFORNIA - Eriococcus coccineus heavy on Mammillaria alacantha growing stock in Concord, Contra Costa County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - NEW YORK - Females still ovipositing on Long Island. (N.Y. Wkly. Rpt., June 8).

NARCISSUS BULB FLY (Lampetia equestris) - WASHINGTON - First adult emerged at Pullman, Whitman County, June 6. (Johansen, Dodge).

ROSE-SLUG (Endelomyia aethiops) - CONNECTICUT - A problem at Storrs, Tolland County. (Savos).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Heavy on aralia nursery stock locally in Concord, Contra Costa County. (Cal. Coop. Rpt.).

MILLIPEDS - GEORGIA - Damaging flowers and potted plants in Morgan County (West); common around homes in Athens (Jordan); numerous around homes in Atlanta area (Blasingame).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Troublesome in Delta-Deseret area of Millard County and St. George-Washington County. (Knowlton). TEXAS - Annoying in Denton County. (Turney). NORTH CAROLINA - Culex territans becoming more plentiful in Wake County. (Wray). MINNESOTA - During week ending June 6, 59 larval collections made in Metropolitan Mosquito Control District; virtually all were Culex spp. and Culiseta spp. Light trap collections for same period totaled 3,380 females, of which 2,992 were Aedes vexans. It is possible peak of brood which emerged May 23 was reached June 8 or 9. Evening bit collections for week ending June 6 totaled 58; 661 female mosquitoes collected, including 300 Aedes vexans and 340 Aedes sticticus. Total of 772 five-minute daytime bite collections made, with 7,354 females taken; 4,399 were A. vexans and 2,576 A. sticticus. Latter species unusually prevalent this spring and early summer, particularly in northern Washington, all of Anoka, northern Hennepin and Ramsey Counties; also more prevalent this spring than for past 7 years. A. sticticus breeds mainly in flood plains of rivers and most emerged during flooding of Mississippi, Minnesota and St. Croix Rivers and dispersed into uplands for very long distances. Virtually no new Aedes spp. have emerged since May 23; these now 3 weeks old or older and population aging rapidly; should be drastically reduced during next 7-10 days by natural mortality. (Minn. Ins. Rpt.). WISCONSIN - Cool nights in many areas tended to decrease biting of mosquitoes, although A. vexans noted biting in western Dane County during day. Biting of cattle grazing at night reported in Chippewa, Monroe, Price, Winnebago, Marathon and some areas of Langlade Counties. Mosquitoes a problem in most counties, primarily in areas near streams or rivers. (Wis. Ins. Sur.). MASSACHUSETTS - Aedes spp. numerous and troublesome in New Marlboro, Berkshire County. (Shaw).

HORN FLY (Haematobia irritans) - OHIO - Heavy infestations observed on unsprayed beef cattle in many southwest counties. Ranged 300-400 per beef animal in Clinton County. (Lyon). WISCONSIN - A problem in Bayfield and Oconto Counties. (Wis. Ins. Sur.). IOWA - Ranged 0-10 (averaged 2) per head on 56 cattle herds checked from Logan (Harrison County) to Ames (Story County). (Iowa Ins. Inf., June 8). OKLAHOMA - Moderate to heavy on cattle in Choctaw (southeast), Bryan (south central) and Mayes (northeast) Counties. (Okla. Coop. Sur.). MISSISSIPPI - Numbers reported high in delta counties. (Young, Bennett). UTAH - Moderate on some beef animals in Washington County herds and ranged up to 350 or more on other animals. (Knowlton). INDIANA - Adults on cattle ranged up to 150 per head in Clinton, Boone, Tipton and Blackford Counties (central and east central) and up to 10 per head in Benton, Jasper and Porter Counties (northwest). (Bram).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Activity increased in Fond du Lac, La Crosse and Manitowoc Counties. (Wis. Ins. Sur.). IOWA - Averaged 0.5 per head on 56 herds of cattle checked from Logan (Harrison County) to Ames (Story County). Few backrubbers noted in pastures. (Iowa Ins. Inf., June 8).

TABANID FLIES - MARYLAND - Chrysops niger quite troublesome on Eastern Shore and in Anne Arundel County. (U. Md., Ent. Dept.). WISCONSIN - Deer flies and horse flies becoming problem in northern counties. (Wis. Ins. Sur.). MISSISSIPPI - High numbers of horse flies reported in delta counties. (Young, Bennett).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

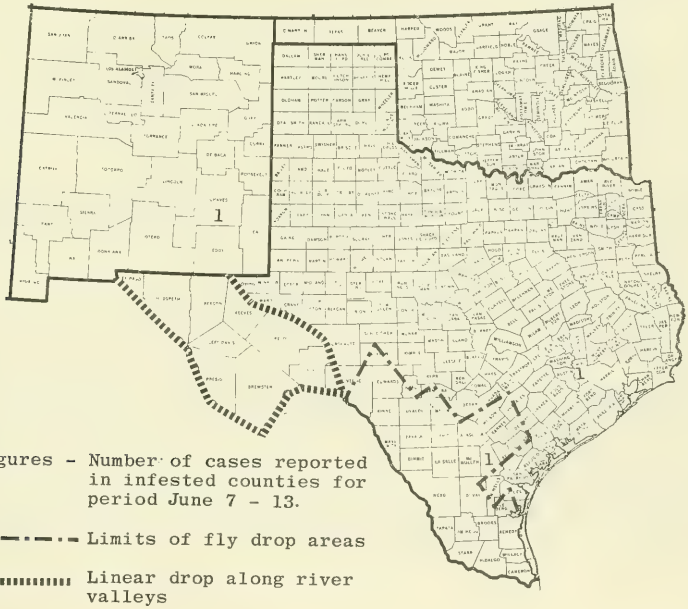
During the period June 7-13, only 2 specimens were identified from 2 TEXAS counties. Waller County reported its first infestation, which also represented the most eastward penetration of screw-worm this year. The other case was reported in Live Oak County. During this period, NEW MEXICO experienced its second screw-worm infestation of the year at Chaves County. The Republic of M xico reported 108 screw-worm cases from the States of Sonora (57), Chihuahua (19), Coahuila (2), Nuevo Leon (6), Tamaulipas (22), San Luis Potosi (1) and Veracruz (1). Total of 90,993,250 sterile screw-worm flies was released: 29,820,250 in Texas, 1,640,000 in New Mexico, 3,414,000 in Arizona and 56,119,000 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963. Please note that ratios are now given in terms of 100.

	Positive Cases		Negative Cases*		Ratio of Cases Positive to Netative**	
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,915	13,517	108	1,729	177.3:100	781.7:100
1963	138	1,485	177	3,628	77.1:100	40.0:100
1964	3	81	119	3,535	2.5:100	2.3:100

* The number of cases not screw-worm is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases than are not screw-worm is an index of the change in numbers of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period June 7 - 13.

Limits of fly drop areas

Linear drop along river valleys

FACE FLY (Musca autumnalis) - IOWA - Ranged 0-5 (averaged 1) per head on 56 herds of cattle checked from Logan (Harrison County) to Ames (Story County). (Iowa Ins. Inf., June 8). WISCONSIN - Troublesome in Sauk, Grant and few areas in Langlade and Walworth Counties. (Wis. Ins. Sur.). INDIANA - Increasing slightly but considerably lower than at same time in 1963. Adults ranged less than 1 to 4 per face on cattle in Blackford, Tipton, Boone and Clinton Counties (central and east central); ranged less than 1 to 2 per face in Benton, Jasper and Porter Counties (northwest). (Bram). OHIO - Remains light throughout State. (Lyon).

HOUSE FLY (Musca domestica) - NEVADA - Adults heavy in dairies in Moapa Valley, Clark County. (Bechtel, Zoller). WISCONSIN - Beginning to increase. (Wis. Ins. Sur.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults running cattle in Syracuse-Clinton area of Davis County, in fields west of Smithfield and Wellsville in Cache County, and in Springville area of Utah County. (Hammond, Dorst, Knowlton). WYOMING - Adults noted running cattle near Albin, Laramie County. (Marks). OHIO - Considerable running of cattle observed in southeast. Farmers complain that flies (probably H. lineatum) annoying dairy cattle caused decreased milk production. (Lyon). MICHIGAN - Few H. bovis larvae still present in backs of native cattle in central portion of Lower Peninsula; numbers moderate in Menominee County. Adults running cattle in Lower Peninsula. (Bowers, Sowerby).

SHEEP KED (Melophagus ovinus) - UTAH - Controls applied to only 3,000 of the 85,000 sheep in Uintah County this spring. (Bendixsen, Knowlton).

AMERICAN DOG TICK (Dermacentor variabilis) - IOWA - Adults continue troublesome at Ames and Marshalltown. (Iowa Ins. Inf., June 8). OHIO - Thousands observed crawling up side of house in Lebanon, Warren County (southwest). Children became infested when playing in area. (Ross, Blair).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on cattle in Choctaw County (southeast). (Okla. Coop. Sur.).

WOOD TICKS - WISCONSIN - Large numbers continue to be reported, particularly in low areas near woods. (Wis. Ins. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - CALIFORNIA - Medium populations present in chicken establishment in Wasco, Kern County. (Cal. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - NORTH CAROLINA - Annoying in many Piedmont area localities. Mostly nymphs reported during late May and early June. (Wray).

PAVEMENT ANT (Tetramorium caespitum) - NEW JERSEY - Winged forms causing some concern. (Ins.-Dis. Newsltr.).

SPRINGTAILS - NEW JERSEY - Continue troublesome in many areas. (Ins.-Dis. Newsltr.).

SILVERFISH (Lepisma saccharina) - OKLAHOMA - Becoming a problem in Okmulgee County homes (east central). (Okla. Coop. Sur.).

PILLBUGS - TEXAS - Becoming nuisance in homes in Guadalupe County. (Texas Coop. Rpt., Massey; June 5).

OLD-HOUSE BORER (Hylotrupes bajulus) - NORTH CAROLINA - Adult taken from badly damaged window sill at a location in Rowan County. (McNeely, Mount).

A POWDER-POST BEETLE (Lyctus brunneus) - MARYLAND - Adults emerged from bamboo curtain at Elkton, Cecil County. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Few reproductives still swarming in Anne Arundel County. (U. Md., Ent. Dept.).

A HORNTAIL (Sirex areolatus) - GEORGIA - Emerging from lumber in newly constructed house. Lumber imported from Western State. (Tippins).

CARPENTER ANTS - CONNECTICUT - A problem at Storrs and Newtown. (Savos).

STORED-PRODUCT INSECTS

SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis) - OHIO - Adults light in grain elevator in Columbus, Franklin County (central). (Galford).

INDIAN-MEAL MOTH (Plodia interpunctella) - OHIO - Larvae and adults heavy in store in Franklin County; larvae inside candy, adults crawling over surface. (Galford).

BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Common in all Latah County alfalfa infested with pea aphid. (Futter). WYOMING - Adults averaged 37 per 100 sweeps in alfalfa in Washakie and Hot Springs Counties. (Marks). UTAH - Various species moderately numerous in Washington County alfalfa. Adalia bipunctata moderately numerous on aphid infested pecan trees in St. George-Santa Clara area of Washington County. (Knowlton). ARKANSAS - Several species, mainly Hippodamia convergens, present in small numbers in northwest area alfalfa. (Ark. Ins. Sur.). ALABAMA - Several species, mainly H. convergens and Coleomegilla maculata fuscilabris, very active in cotton. Lesser numbers of Coccinella novemnotata feeding in cotton, vetch and corn. (McQueen).

A GORSE WEEVIL (Apion ulicis) - OREGON - Adults noted laying eggs on gorse in Coos County May 26. This weevil a predator of gorse. (Every).

DAMSEL BUGS (Nabis spp.) - ALABAMA - Common in cotton throughout State. (McQueen). ARKANSAS - Numerous in northwest area alfalfa. (Ark. Ins. Sur.). WYOMING - Adults averaged 45 per 100 sweeps in alfalfa in Washakie and Hot Springs Counties. (Marks). UTAH - N. alternatus and other species moderately numerous in Washington County alfalfa. (Knowlton).

BIG-EYED BUGS (Geocoris spp.) - WASHINGTON - Ranged 5-121 per 100 sweeps in regrowth alfalfa infested with pea aphid in Walla Walla and vicinity, Walla Walla County. (Halfhill). ARKANSAS - G. punctipes numerous in northwest area alfalfa. (Ark. Ins. Sur.). ALABAMA - G. punctipes present in large numbers in most cotton fields. (McQueen).

AN INSIDIOUS FLOWER BUG (Orius insidiosus) - ARKANSAS - Present in good numbers in northwest area alfalfa. (Ark. Ins. Sur.). ALABAMA - Although noticeable in cotton, not present in sufficient numbers to be effective; same true during 1963 season. (McQueen).

LACEWINGS - IDAHO - Common in all alfalfa infested with pea aphid in Latah County. (Futter). ARKANSAS - Good numbers present in alfalfa in northwest area. (Ark. Ins. Sur.).

A CINNABAR MOTH (Tyria jacobaeae) - OREGON - Single adult of this predator of tansy ragwort noted May 26 in Linn County. Released in county during 1960. (Every).

PARASITIC BRACONIDS (Aphidius spp.) - WASHINGTON - Ranged 8-35 per sweep on regrowth alfalfa infested with pea aphid in Walla Walla and vicinity, Walla Walla County. (Halfhill).

Beneficial Insects in Cotton - CALIFORNIA - Populations moderate in Fresno County; mostly Orius tristicolor and Geocoris sp.; few lady beetles active. (Stromberg, June 4). Populations generally good in Kern County; include Geocoris sp., O. tristicolor, lady beetles and few Chrysopa spp. (Black, June 4).

MISCELLANEOUS INSECTS

A TIGER BEETLE (Cicindela haemorrhagica) - IDAHO - Larvae heavy in alkali bee bed in Nampa area, Canyon County. (Hart).

A DARKLING BEETLE (Metoponium opacipenne) - CALIFORNIA - Medium populations occurring in a barley planting in Murray, Kings County. (Cal. Coop. Rpt.).

GIANT STAG BEETLE (Lucanus elaphus) - NORTH CAROLINA - Adults collected in Davidson County. (Johnson, Mount).

A FRUIT FLY (Zonosemata vittigera) - ARIZONA - Specimen trapped in peach orchard at Continental, Pima County, June 2. (Ariz. Coop. Sur.).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - Colonies active, generally storing seeds. Many dead larvae of Great Basin tent caterpillar (Malacosoma fragile) stored in nests in Springdale area, Washington County. (Knowlton).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Adults occasionally collected in surveying Latah County alfalfa fields. (Futter).

A MEDITERRANEAN SNAIL (Cochlicella ventrosa) - CALIFORNIA - Found infesting wild oats in Santa Cruz, Santa Cruz County. This is first record in State since 1899 in Oakland, Alameda County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 14(24):616 - TOBACCO INSECTS WIREWORMS - OHIO - Should read A SOD WEBWORM (Crambus sp.) - OHIO.

CEIR 14(24):625 - Ratio of Screw-worm Cases Positive to Negative should read 100 rather than 1,000 in both columns, beginning with this issue.

CEIR 14(24):629 - HAWAIIAN INSECT NOTES - Paragraph 3, line 6: Aspitiotus should read Aspidiotus.

LIGHT TRAP COLLECTIONS

	Temperature F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chloridea (Heliothis) virescens (tobacco budworm)	Chorizagrotis auxiliaris (gray cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feltia ducens (sugar beet armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commutalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Omiodes (Loxostege) indicata (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornatissima (yellow-striped armyworm)	Prodenia quadrupilla (tobacco budworm)	Prodenia quinquemaculata (tobacco budworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																									
Hope 6/4-10				0						0	20						0				19				
Morrilton 5/28-6/3				4						0	1						8				3				
Kelso 6/4-10				0						0	0						6				3				
CALIFORNIA																									
Davis 6/6-12				3	1				1								3				6				Misc.
FLORIDA																									
Gainesville 6/8			BL	1					13			5								1					
ILLINOIS (County)																									
Champaign 6/5-11	52-87	0.25"		27							1				2		111	6			582				
INDIANA (Counties)																									
Posey 6/2-8											0				1				6	5	439				
Vanderburgh 6/2-8				42							0	0			0		11	1	1	2	221				
Harrison 6/2-8											1				7				13	19	49				
Dubois 6/2-8											1				10				0	0	75				
Sullivan 6/2-8				9							1	0			1		8	0	1	0	233				
Greene 6/2-8											1				0				0	0	57				
Jackson 6/2-8				14							2	0			2		25	2	4	2	189				
Switzerland 6/2-8											0				1				2	1	86				
Franklin 6/2-8				40							0	0			38		7	0	3	1	169				
Parke 6/2-8											0				10				0	0	243				
Shelby 6/2-8											0				0				0	0	21				
Hamilton 6/2-8											0				0				0	0	22				
Tippecanoe 6/2-8				63							0	0			108		37	13	0	0	1417				
Jasper 6/2-8				56							0	0					19	7	0	0	481				
KANSAS													spp.												
Garden City 6/3, 5, 8				24		2500		16			22		142				50				74				
Hays 6/2, 4, 6, 9				4		223		6					110				49	2			63				
Manhattan #1 6/6-12				86		189		1			1		95				218	36			722				
Manhattan #2 6/6-8				64		384		24			16		920				608				1880				
Mound Valley 6/2													30				3	5			14				
Wathena 6/3, 7, 9				2		9											22				71				
MARYLAND																			spp.						
Centreville 6/3-9				14							1	4			65		15		7		0				
Berlin 6/5-11				13							27				96		10				116				
MICHIGAN (Counties)																									
Monroe 6/2-8			BL												9						7				
Branch 6/2-8			BL	9																	61				
Kalamazoo 6/2-8			BL	9																	30				
Jackson 6/2-8			BL	9																	19				
Livingston 6/2-8			BL	7											60						87				
Menominee 6/2-8			BL																		21				
Chippewa 6/2-8			BL	42													22				186				
MISSISSIPPI																									
Stoneville 6/6-12	63-100		MV	116			8		1	9	31						155	112		13	132		42		
Stoneville 6/6-12	"		BL	3			3		8	1	14						127	76		0	37		1		

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small graine; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Temperature° F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Capnodisca gossypiella (cotton moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Feronia diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commistalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege similalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Perdrosa gauris (velvetleaf cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tobacco hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
NEBRASKA																								
Chappell 5/22-28						71		14								1								
Bushnell 5/19-26						690		76								39								
Bushnell 5/27-6/2						417										28								
Kearney 5/26-6/1						838				2						21				6				
North Platte 5/28-6/3				10		2497		2								139				57				
Ogallala 5/27-6/3				25		816		5								154				125				
Scotts Bluff Expt. Sta.													spp.											
5/28-6/3				2		813		2					354			37				3				
NORTH DAKOTA																								
Fargo 6/5-12														6	14					411				
Williston 6/5-12														9						8				
Bowman 6/5-12														138										
Killdeer 6/5-12														4										
Emrick 6/5-12														1										
OHIO																								
Wooster 6/12	67.1	0		5			5													10				
Reynoldsburg 6/12				4			15													18				
Columbus 6/11				1																28				
OREGON (County)																								
Marion 6/12			BL	1												1								
SOUTH CAROLINA (Counties)																								
Oconee 6/30-6/5				1				3		2						4	45		1	4				
Charleston 6/8-14	60-94	0.35"	BL	4			1	7	0	10	0					7	10	1	3	11		29		
TENNESSEE (Counties)																								
Maury 5/26-6/1				4						22							9	4	7	21				
Robertson 5/26-6/1				7						13						4	2		1	17				
Cumberland 5/26-6/1										4						4				3				
Greene 5/26-6/1				9													5	2	7	7				
Knox 5/26-6/1				52						4						8	32	1	2	8				
Johnson 5/26-6/1				2												9	5			1				
TEXAS																								
Waco 6/6-12				34			5	38	1	95						84	49			49	17	39		
Brownsville 6/4-10			5BL				120	563	53	2265	573		2440			4	64	42	34	97		1870		
WISCONSIN																								
Platteville 6/2-7			BL	3											2	21				274				
Madison 6/4-10	36-92		BL	10											14	30				388				
Madison 6/2-9	36-92		BL		22																			
Middleton 6/4-10			BL	7											11	9				84				
Middleton 6/2-9			BL		4																			
De Forest 6/2-8			BL	1												5				16				
Waldo 6/2-8			BL	2												5				147				
Cedar Grove 6/2-8			BL																	207				
WYOMING																								
Laramie 5/19-25						2		1								5								
Cheyenne 5/20-26				2		486										20								

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20781

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE

VOL. 14 No. 26 June 26, 1964

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

Volume 14 June 26, 1964 Number 26

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

RED-LEGGED GRASSHOPPER hatching in Wisconsin and Minnesota. Heavy or threatening numbers of grasshoppers reported in areas of Texas, Oklahoma and Wyoming. (p. 673). Practically all EUROPEAN CORN BORER moths emerged in Illinois, but adverse weather retarded egg laying. Egg laying underway in Wisconsin and Minnesota. SOUTHWESTERN CORN BORER damaged considerable corn in Scott, Neshoba and Calhoun Counties, Mississippi. (p. 674). Light trap catches of ARMYWORM in Newaygo and Chippewa Counties, Michigan, indicate possible problems to grain in areas. BLACK CUTWORM damage in several Wisconsin counties necessitated replanting of corn. (p. 675). NORTHERN CORN ROOTWORM larval populations appear relatively high in Arlington area of Wisconsin. (p. 676). A BARLEY THRIPS (Limothrips denticornis) active on rye in most of eastern North Dakota. WHEAT CURL MITE and mosaic infected wheat plants found at nearly every stop during survey in Laramie, Goshen, Platte, Niobrara, Weston and Crook Counties, Wyoming. (p. 677).

COLORADO POTATO BEETLE important problem on Eastern Shore of Virginia. (pp. 684-685). CABBAGE MAGGOT a problem in areas of New York, and CABBAGE APHID moderate to heavy on commercial cabbage in Lucas County, Ohio. PEA APHID showed marked increase on late peas in Wisconsin and POTATO LEAFHOPPER increased on bean in southern portion of State. (p. 686). ONION MAGGOT active and damaging onions in areas of Idaho, Colorado, Minnesota, New Jersey and New York, and SPINACH LEAF MINER active in Wyoming, New Jersey, New York and Connecticut. (p. 687). CUCUMBER BEETLES damaging cucurbits in some area. (p. 688). CUTWORMS caused light to serious damage to many vegetable crops in central and southern Michigan. (p. 689).

Emergence of overwintered BOLL WEEVIL adults at peak in Florence area, South Carolina; untreated fields badly infested and entire top crop could be lost. THRIPS damaging cotton throughout South Carolina and moderate to heavy infestations reported 15 lower panhandle counties of Texas; populations reported heaviest in years in some of these Texas counties. (p. 690).

CANKERWORMS heavy along Connecticut River in Vermont and defoliation heavy in areas of Wisconsin. (p. 695). COTTONY MAPLE SCALE killing maples and elms in Elkhorn and Delavan, Wisconsin. (pp. 696, 702). ROSE CHAFER heavy and damaging in several Eastern States. (p. 697).

FACE FLY irritating pastured cattle in Vermont. HORN FLY counts high in Oklahoma and heavy on livestock in delta area of Mississippi. (pp. 699, 700).

JAPANESE BEETLE adults reported from several States. A CUBAN MAY BEETLE (Phyllophaga brunneri) reached high populations in Miami area of Dade County, Florida, During May and extended known range 12 miles from original find in 1959. (p. 702).

DETECTION

New State records include a LEAF ROLLER MOTH (Sparganothis chambersana) in Florida (p. 681), a SPIDER MITE (Oligonychus milleri) in Pennsylvania (p. 694, OLD-HOUSE BORER (Hylotrupes bajulus) in Minnesota (p. 701), an APHID (Capitophorus glandulosus) in Virginia (p. 702), and an ANDRENID BEE (Andrena viburnella) in South Carolina (p. 703), and a PLANT BUG (Amblytylus nasutus) in Illinois (p. 678). New county records were ALFALFA WEEVIL (Hypera postica) in Spencer, Perry, Gibson and Vanderburgh Counties, Indiana, and Clay, Hamilton, Perry and Washington Counties, Illinois (p. 678); EUROPEAN CORN BORER (Ostrinia nubilalis) in New Hanover County, North Carolina (p. 685); and ELM LEAF BEETLE (Galerucella xanthomelaena) in Sarpy County, Nebraska (p. 695).

CORRECTIONS

See page 703.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 706).

Reports in this issue are for week ending June 19, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1964

The Weather Bureau's 30-day outlook for mid-June to mid-July calls for temperatures to average below seasonal normals over the Great Lakes, Northeast, Central Plains and Far West. Above normal averages are predicted for the southern third of the Nation lying east of the Continental Divide and also over northern portions of the Plains and Rockies. In areas not specified near normal temperatures are in prospects. Rainfall is expected to exceed normal in a broad zone extending southwestward from the western Great Lakes to the southern Rockies. Subnormal amounts are indicated east of the Appalachians, in States bordering the Gulf of Mexico, and in the far Southwest. In the remainder of the country amounts not far from normal are anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $5.00 a year.

WEATHER OF THE WEEK ENDING JUNE 22

Bountiful showers fell over much of the Nation but in extensive areas of the Southwest, Southeast, and Northeast general rains are still needed.

TEMPERATURE: Hot, humid air held sway during much of the period in the area eastward and southward from the central Great Plains where averages were mostly above normal. A departure 6° above normal at Midland, Texas, was due in part to 5 days of maxima 100° or more. Daily highs to the mid-90's reached into the Great Lakes and New England towards the end of the week, after snow squalls were observed in northern Maine on the 16th-17th. Freezing minima and mostly below-normal averages were recorded in areas from Maine to Pennsylvania and Michigan to Minnesota. Averages continued below normal over the northern Plains and Far West; deficiencies of 10° were reported from Pocatello, Idaho, and Salt Lake City, Utah. The high for the week at Pocatello was 69°.

PRECIPITATION: Rains of the week were typical local thundershowers and occurred on most days. As usual, there were many instances of local damage in the form of hail, strong gusty winds, or local flooding. There were ample to excessive rains again over much of the northern Rockies, Great Plains, and the middle Mississippi Valley to the Atlantic coast. Large areas of Montana, North Dakota, Nebraska, Missouri, Oklahoma, Texas, Illinois, and Indiana received totals over 2 inches, with many local falls exceeding 5 inches. Thundershowers early in the period dropped up to 14 inches of rain in a few hours over central Texas. Not far from Waco, McGregor was swamped with 13.96 inches, and Moody 13.00 inches on the 15th-16th. Not all totals were this great and the rain was generally welcome. Showers of a generally beneficial nature, though locally damaging, fell from eastern areas of Oklahoma and Nebraska into Pennsylvania and West Virginia. Prairie du Rocher, Illinois, received 7.30 inches in a few hours of the 17th-18th. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - MARYLAND - Melanoplus spp. causing light to moderate injury to soybeans on Eastern Shore. (U. Md., Ent. Dept.). ILLINOIS - Main hatch of Melanoplus spp. starting. Populations, mostly first instars with occasional second and third instars, varied 140-760 (averaged 345) per 100 sweeps in grass and 80-140 (averaged 103) per 100 sweeps in second-growth alfalfa in northwest district. (Ill. Ins. Rpt.). MISSOURI - All stages of development of Melanoplus spp. found in southwest; some feeding occurring along margins of fields, but heaviest populations remain close to hatching sites. (Houser, Thomas, Wood). IOWA - M. differentialis (differential grasshopper) spotty in southern half of State; nymphs ranged first to third stages with 2-5 per square yard in fence rows. (Iowa Ins. Inf., June 15). WISCONSIN - Newly hatched and second-stage nymphs of M. femurrubrum (red-legged grasshopper) becoming noticeable in regrowth alfalfa and prevalent in few sandy-textured fields in Rock, Green and Dane Counties. Small nymphs of M. differentialis common in most of these fields as well. Populations of both species as high as 15 per sweep in at least one field. (Wis. Ins. Sur.). MINNESOTA - M. femurrubrum eggs hatching. High counts of first instars found in Anoka, Sherburne and Wright Counties; excess of 50 per square yard in 2 Wright County fields, with about 75 percent of eggs hatched. A general hatch of M. femurrubrum also reported in southeast and southwest districts. Cutting and removal of alfalfa resulted in increased development and hatch. M. bivittatus (two-striped grasshopper) and M. sanguinipes (migratory grasshopper) in third and fourth instars in southeast, west central and central districts. Grasshopper populations statewide very scattered and localized. (Minn. Ins. Rpt.). NORTH DAKOTA - Marginal infestations of grasshopper nymphs in Logan, Hettinger, Dunn and McKenzie Counties ranged from less than 1 to 25 per square yard (averaged 5-10). Field counts ranged from less than 1 to 8 (averaged 1). Development ranged from first through fifth instar; 25 percent first instar, 25 percent second, 40 percent third and 10 percent fourth instar. An occasional fifth instar observed. Dominant species included M. bivittatus, M. sanguinipes, M. packardii (Packard grasshopper) and M. femurrubrum. (Brandvik). Nymphal survey in Dickey, Sargent, La Moure, Ransom, Barnes, Griggs and Steele Counties showed marginal counts of less than 1 to 11 per square yard (averaged 1-3). Field counts ranged from less than 1 to 11 (averaged from less than 1 to 3). Development ranged from first through fourth instar; most in second and third instars. Dominant species M. bivittatus and M. sanguinipes; few M. packardii, M. femurrubrum and Camnula pellucida (clear-winged grasshopper) observed. (Scholl).

OKLAHOMA - Nymphal grasshopper surveys conducted in Beaver, Beckham, Ellis, Harmon, Harper, Major, Woods and Woodward Counties. Threatening numbers of several species found on 15,000 acres in northwest Woodward and 10,000 acres in southwest Beckham County, with counts 8-20 per square yard. Counts of 10-15 per square yard noted on rangeland in Garvin County. Light to moderate reports from Greer, Craig and Payne Counties. (Okla. Coop. Sur.). TEXAS - Heavy populations of several species reported on rangeland in Briscoe County; 5-30 per square yard and cover approximately 2,000 acres. (Grossdidier). Infestations also reported from south central, east and upper coastal areas of State. (Texas Coop. Rpt.). WYOMING - Second instars of several species heavy in alfalfa and small grain fields near Wheatland, Platte County, and Torrington, Goshen County. (Marks). OREGON - Undetermined grasshoppers emerging from egg beds in large numbers at 20 locations in pastures in central Douglas County. (Vertrees). Nymphal survey in Harney County week of June 8 revealed only scattered third and fourth instars of banded wing species in range areas checked. Light hatching of C. pellucida occurring in grassland meadows of same areas, with only first instars being noticed. No viable eggs found. (Jackson, Goeden). NEVADA - Nymphal infestations generally 5-6 per square yard in Paradise Valley, Humboldt County, and in most areas of Orovada, Humboldt County. In latter locality some counts in spotted areas averaged 10+ per square yard. Weather has been cool and damp. Dominant species Aulocara elliotti, C. pellucida, M. sanguinipes and Oedaleonotus enigma. (Cooney, Del Curto, Sebbas). CALIFORNIA - Medium populations of M. devastator (devastating grasshopper) occurring on rangeland and in yards in Clovis area, Fresno County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Pupation reached 80 percent in Fargo area. (Frye). MINNESOTA - Egg laying started in southern half of State; counts varied greatly from field to field. Most eggs found on corn plants above 20 inches in height. (Minn. Ins. Rpt.). WISCONSIN - Egg masses ranged 4-16 in larger corn plants in Dane and Rock Counties; some larval damage appearing. Adults continue common in oat fields. (Wis. Ins. Sur.). IOWA - Development at Ankeny as follows: 80 percent emergence with 5 egg masses per 100 plants on 30-inch corn on June 12. In Boone County, egg masses 4 per 100 plants 19 inches tall. At Burlington, 2 egg masses per 100 plants on sweet corn, with 1-2 percent showing leaf feeding. (Brindley, Iowa Ins. Inf.; June 15). MISSOURI - Pupation occurring in southeast. In central area, leaf feeding scars found on 32-84 percent of corn plants. Stages of development ranged from first to third-stage larvae. Some larvae entered stalks. Moth flights and egg laying continue in northern one-third of State. (Houser, Thomas, Wood). ILLINOIS - Practically all moths emerged, but adverse weather conditions retarded egg laying and some eggs dropped from plants. Since egg laying started, hot, dry weather with very strong winds and then heavy rains with cool nights occurred. Situation by districts as tabulated below.

District	Egg masses per 100 plants Range	Egg masses per 100 plants Average	Percent Eggs Hatched	Percent Plants Infested	Larvae per infested plant	Corn Height Extended (average)
Northwest	0-160	37.4	36.1	10.6	1.8	39.4"
Northeast	0-20	6	0			35.6
West	0-130	45.2	30.1	11.6	1.7	49.5
Central	0-60	15.6	21.2	3.4	3.3	45.3
East	0-10	2	0			36.4
West-southwest	0-40	24.3	35.4	7.1	1.4	45.6

Larval development as follows: Northwest - 92 percent first instar and remainder second instar; west - 91 percent first instar and remainder second; central - 96 percent first instar and remainder second; west-southwest - 86 percent first instar and remainder second. (Ill. Ins. Rpt.). INDIANA - Second instars infesting up to 20 percent of corn in southwest. (Bram). OHIO - Egg depositions occurred for past 2 weeks in Wayne County, northeast. (Barry). MICHIGAN - Peak flight has passed in Livingston County and egg laying in progress. Light-trap catches in other southern counties indicate flight still on. (Newman, Naus, Bailey, Worden). NEW YORK - Heavy population expected for Suffolk County; first brood damage already noted. Continues to hatch and egg laying goes on in Ulster County. No egg masses found in Niagara County. (N.Y. Wkly. Rpt., June 15). RHODE ISLAND - No eggs found in search of corn in Kingston, Washington County. (Mathewson). NEW JERSEY - One field of sweet corn in southern area showing approximately 50 percent tassel damage. (Ins.-Dis. Newsltr.). MARYLAND - Larval infestations in more advanced field and sweet corn generally light but increasing steadily; over 20 percent of plants infested in one Frederick County field. (U. Md., Ent. Dept.). VIRGINIA - Light trap catches on Eastern Shore have been lowest on record thus far. (Hofmaster). ALABAMA - First reported for season in Tennessee Valley area, especially in Limestone and Jackson Counties, indicates a considerable "hatch out" and some damage to corn. Older larvae now boring into stalks. (Eden, White).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSISSIPPI - Damaged considerable corn in Scott, Neshoba and Calhoun Counties. Also present in other counties; degree of injury to corn not reported. (Bennett, Young). ARKANSAS - First generation pupating in southern area. (Ark. Ins. Sur.). ARIZONA -

Larvae 3-6 per 25 corn plants in Graham County. (Ariz. Coop. Sur.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - GEORGIA - Heavy infestations on sweet corn in Walton County. (Vanderford).

STALK BORER (Papaipema nebris) - IOWA - First of season reported week ending June 6 in Shelby County. (Peters, Iowa Ins. Inf.; June 15). WISCONSIN - Few small larvae found in marginal rows of corn in southern counties. Populations apparently considerably lower than in 1963. MINNESOTA - Found again in marginal rows of corn. (Minn. Ins. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - MICHIGAN - Serious larval damage to small grains and corn continues in western and southwestern counties as far north as Ludington. Presence of small larvae in Cass and Van Buren Counties indicates flight of moths continuing into State. Light-trap catches in Newaygo and Chippewa Counties indicate possible problems to grain in these areas. Fields with lodged grain should be carefully watched for larval feeding. Because of earliness of infestation this year, leaf stripping by larvae may reduce yields of small grains in infested fields. (Janes, Steeby, Raven, Machiele, Sparks, Earle). IOWA - Four or more half-grown larvae per square foot in wheat near Thurman, Fremont County. (Munson, Iowa Ins. Inf.; June 15).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Causing severe damage in whorls of about 15 percent of sweet corn plants in untreated plot at Gainesville, Alachua County; plant height about 24-30 inches. (Habeck, June 12). GEORGIA - Sweet corn 25 percent infested in Tift County. (Beck). ALABAMA - Reported causing extensive damage to whorls of late corn in Mobile and Baldwin Counties. (Seibels, Simms, Eden). MISSOURI - Larvae taken from whorls of few corn stalks in Lawrence County field, southwest. (Houser, Thomas, Wood).

BLACK CUTWORM (Agrotis ipsilon) - WISCONSIN - Reports from Iowa, Winnebago, Buffalo, Washington, Waukesha and Green Counties indicate replanting of corn underway due to damage by this species. Larvae presently either very early instars or about fourth of fifth instar. Additional damage to corn possible. (Wis. Ins. Sur.). SOUTH DAKOTA - Remains most serious pest of corn. Reports of damaging numbers from McCook through Brookings Counties received. Extremely dry conditions through eastern half of State apparently prolonged damage period. (Walstrom, June 12).

CORN EARWORM (Heliothis zea) - NEW JERSEY - Moths collected in light trap; early varieties of sweet corn ready for control program. (Ins.-Dis. Newsltr.). SOUTH CAROLINA - Damage to buds of corn more numerous than at this time last year in Florence County. (Nettles et al., June 16). GEORGIA - Infesting 47 percent of whorls of field corn and 90 percent of whorls of sweet corn in Walton County. (Vanderford). All ears infested in experimental plots. (Callahan). MISSOURI - Larvae feeding in whorls of 5-22 percent of corn stalks in southwest; development ranged from early instars to fully developed larvae. (Houser, Thomas, Wood). OKLAHOMA - Light, fewer than 1 per 10 sweeps, noted in Altus and Chickasha areas. Moderate counts reported from McCurtain, Choctaw and Cleveland Counties. (Okla. Coop. Sur.). WASHINGTON - First adults collected from light traps June 12 at Prosser, Benton County, and June 4 at Othello, Grant County. (Klostermeyer).

SOD WEBWORMS (Crambus spp.) - OHIO - Larvae causing considerable damage to field corn in Williams County, northwest section. (Clemons, Blair). IOWA - Reduced stand from 19,000 to 4,000 on 4 acres of corn following sod in Shelby County. (Iowa Ins. Inf., June 15). OREGON - C. topiarius quite abundant in fescue fields and some lawns in Washington County. C. bonifatellus adults, which were very plentiful on lawns throughout May, now disappearing. (Prescott).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Found in all townships of Shiawassee County and in Handy, Cohoctah, Howell, Oceola, Genoa and Green Oak Townships of Livingston County. First "summer adults" emerged on June 14 and 15 in Berrien County and now common on green oats, barley and foxtail grass and scarcer on green parts of wheat. Eggs and young larvae rare; third and fourth instars and prepupae scarce. Pupae common in spring grains. (Turner, Lovitt, Ruppel). INDIANA - In La Porte and St. Joseph Counties, northeast section, pupation not so advanced as believed last week; pupation presently estimated at 70 percent complete. Numerous second and third-stage larvae from late deposited eggs present as well as many prepupae. (Wilson). For week ending June 5, three townships outside regulated area found infested in Allen County and one township outside regulated area in Wabash County. Total of 134 sampling sites negative in Benton, Blackford, Carroll, Grant, Koscuisko, Lake, Montgomery and Wells Counties, northern half of State. (Lanier). Record of infestation in Parke County (CEIR 14 (25):640) in error; larval specimens not O. melanopa, but Lema sp. (PPC).

CORN ROOTWORMS (Diabrotica spp.) - KANSAS - Larval activity not started yet in corn in north central area. (Burkhardt). MISSOURI - Larvae of D. virgifera (western corn rootworm) averaged 1-3 per plant on volunteer corn in northwest. D. longicornis (northern corn rootworm) hatching in Boone County, central area. Larvae of D. undecimpunctata howardi (southern corn rootworm) fully grown in northern half of State. (Houser, Thomas, Wood). NEBRASKA - First and second instars present and feeding on corn roots in Saunders County; averaged approximately 5 per plant on June 11. (Lawson). Larvae also present in volunteer corn in Adams County June 11. (Bergman). Larvae found on corn in North Platte during week of June 15. (Hill). MINNESOTA - High numbers found in check plots near Austine in Mower County. Root feeding and tunnelling observed. Light numbers found in Nobles County, southwest district; apparently, egg hatch later in this area. (Minn. Ins. Rpt.). WISCONSIN - Larvae of D. longicornis one-fourth grown in Arlington area, Columbia County, on June 10. Populations appeared relatively high. Field in Door County had 30 percent plant reduction. (Wis. Ins. Sur.). ILLINOIS - D. undecimpunctata howardi adults light on corn leaves. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Caused noticeable damage to field corn at Thurmont, Frederick County. (U. Md., Ent. Dept.). ALABAMA - Extensive feeding on corn and nearby native grasses noted in Mobile, Jackson and most other counties throughout State. (Seibels, Simms, Chambers, et al.).

BILLBUGS - SOUTH CAROLINA - Damage to corn increased over past 2 years in Florence County. (Nettles et al., June 16). NORTH CAROLINA - Larvae of Sphenophorus maidis causing considerable damage to 30 acres of corn in Beaufort County. (Mount). OHIO - Feeding injury by unspecified species observed in 35-acre sweet corn field in Lucas County, northwest. (Lyon). MICHIGAN - Unspecified species damaging corn in many areas. (Michiele, Steeby, Raven, Earle, Townsend, Pennock, Janes).

WIREWORMS - NORTH CAROLINA - Melonotus communis pupating in a previously reported cornfield in Washington County; few callow adults also seen. (Mount). MARYLAND - Undetermined species injured 25 acres of young corn in Montgomery County. (U. Md., Ent. Dept.). MICHIGAN - Unspecified species continues to cause damage to corn in many areas. (Michiele, Steeby, Raven, Earle, Townsend, Pennock, Janes). MISSOURI - Causing damage to replanted areas in corn fields in southwest. (Houser, Thomas, Wood).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate to heavy numbers present on sorghum in Craig and Mayes Counties; heavy numbers in scattered fields in Grant County. Some chemical controls applied in Craig County. (Okla. Coop. Sur.). KANSAS - Few observed on sorghum in central area; no serious damage noted. (Peters).

CHINCH BUGS (Blissus spp.) - TEXAS - Causing damage to lawns over widespread area of Nacogdoches County. (Texas Coop. Rpt.; Hamman). CONNECTICUT - Hatching in more southerly parts of State. Lawns may need controls. (Savos).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Reported to have damaged a field of barley near Portales, Roosevelt County. (N.M. Coop. Rpt.).

A PLANT BUG (Amblytylus nasutus) - ILLINOIS - Collected on grass (78 per sweep) May 25, 1964, near Fisher, Champaign County, by C. E. White. Det. by R. C. Froeschner. Apparently a new State record. (Ill. Ins. Rpt.).

BLACK PLANT BUGS - UTAH - Severely discoloring planted grass in fields west of Kanosh, Millard County. (Knowlton).

STINK BUGS - TEXAS - Building up on rice in Waller County; 3-5 per 25 sweeps. (Texas Coop. Rpt.; McClung).

A DELPHACID PLANTHOPPER (Sogata furcifera) - FLORIDA - Lightly infesting red rice at a farm on Rabbitt Island, and abundant on weeds and wild grasses at a farm on Kramer Island, Belle Glade, Palm Beach County. (Faircloth, Robnett, Spencer; June 12).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Adults ranged from a trace to 1 per sweep in eastern two-fifths of State. Those tested for presence of aster yellows virus show very low rate of virulence. (Frye).

CORN LEAF APHID (Rhopalosiphum maidis) - MISSOURI - Light numbers feeding within whorls of some corn plants in southwestern area. (Houser, Thomas, Wood). OKLAHOMA - Moderate to heavy counts in Kiowa and Tillman Counties in grain sorghum; 80-100 per whorl. (Okla. Coop. Sur.). NEW MEXICO - Building up in whorls of grain sorghum in Animas-Cotton City area and Virden Valley, Hidalgo County. (N.M. Coop. Rpt.).

CORN ROOT APHID (Anuraphis maidiradicis) - MARYLAND - Infestations helped reduce stand in field at Browingsville, Montgomery County. (U. Md., Ent. Dept.). MISSOURI - Light in northern area. Infestations spotted within corn fields. (Houser, Thomas, Wood). IOWA - Heavy populations reported in many corn fields in Cass and Montgomery Counties. (Merrick, Iowa Ins. Inf.; June 15).

THRIPS (undetermined) - MARYLAND - Generally present and causing conspicuous injury to corn and soybeans in several areas of State. (U. Md., Ent. Dept.). INDIANA - Ranging up to 40 per leaf on corn in southwest. (Bram). ILLINOIS - Reported on corn from western and southern areas. Silvering reported as very noticeable in some areas. (Ill. Ins. Rpt.). MISSOURI - Causing light to moderate damage to soybeans in central area. (Houser, Thomas, Wood).

A BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Active on rye in most eastern areas. (Frye).

SEED-CORN MAGGOT (Hylemya platura) - SOUTH CAROLINA - Serious stand loss of corn probably caused by this species when planted after growth of rye turned under in Sumter County. Adjacent corn without rye grass has good stand. No seed or soil treatment practiced on either. (Nettles et al., June 16).

WHEAT STEM MAGGOT (Meromyza americana) - MINNESOTA - "White heads" in rye and wheat appearing; some of this caused by Papaipema nebris but most by this species. (Minn. Ins. Rpt.).

WHEAT CURL MITE (Aceria tulipae) - WYOMING - Survey of wheat growing areas in Laramie, Goshen, Platte, Niobrara, Weston and Crook Counties conducted June 4-5. Mites and mosaic infected plants found at nearly every stop, but no disease incidence of economic importance except one badly diseased field south (2 or 3 miles) of Pine Bluffs, Laramie County. Mites found in very isolated fields showing very widespread distribution and local persistence in all areas. (Sill, Somsen, Briones).

BROWN WHEAT MITE (Petrobia latens) - ARIZONA - This species and Tetranychus spp. increasing on Bermuda grass fields of Yuma County. Some controls necessary in Gila Valley and in Roll area. (Ariz. Coop. Sur.).

SYMPHYLANS - COLORADO - Infestations reported in corn in Johnstown area of Weld County. (Marostica).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Infestations in Augusta and Rockbridge Counties variable; larvae 20-360 per 100 sweeps. Heaviest infested field had been sprayed after first cutting. One uncut and untreated field apparently killed. Larvae per 100 sweeps ranged 0-3 in Appomattox County and 4-100 in Campbell County. (Woodside). Light larval infestations encountered in only few of fields checked in Floyd, Franklin, Pittsylvania, Mecklenburg, Lunenburg and Amelia Counties; adults still present in a few fields. (Tarpley). MARYLAND - Damage to second-growth alfalfa by larvae and adults heavy and continuing in central counties. (U. Md., Ent. Dept.). DELAWARE - Larvae averaged 3-4 per sweep in large field of alfalfa in New Castle County; causing rather heavy feeding injury to second growth. (Burbutis, Crossan). MASSACHUSETTS - Decreasing in abundance in western area. In only one field were large numbers (1,500) per 100 sweeps encountered. In one field, 274 adults noted per 100 sweeps on June 15; decreased to 35 per 100 sweeps on June 17. (Shaw). NEW YORK - Pupation continues at rapid rate in Ulster County. Some larval feeding noted on uncut alfalfa and some activity shows on 4 to 6-inch regrowth on cut fields. (N.Y. Wkly. Rpt., June 15). VERMONT - Moving north very rapidly. West River Valley infested from Connecticut River to Sharon, Royalton and Rochester. Also reported from Benson and Brandon in Rutland County. (MacCollom, June 15). OHIO - Larvae infesting second-growth alfalfa in Monroe County, southeast. (Pollock). INDIANA - Adults collected on alfalfa in Spencer, Perry, Gibson and Vanderburgh Counties, southeast (all new county records). In each collection, specimens extremely difficult to find and no economic injury evident. Surveys in Knox, Pike and Orange Counties negative. (Bram). ILLINOIS - Identified from 4 new counties -- Clay, Hamilton, Perry and Washington. This makes a total of 29 counties now known to be infested. A survey (June 8-12) in Cumberland, Moultrie, Shelby, Montgomery, Bond, Clinton Randolph Counties negative. (Dysart). OREGON - Larvae averaged 25 per 10 sweeps in Jackson County alfalfa; no adults found; considerable foliage injury evident. (Larson, Wheeler). IDAHO - Larval populations developed late due to cool weather. Larval damage only recently evident to farmers and many first-cutting alfalfa seed fields in Canyon County have recently been or soon will require treatment. (Waters). Considerable damage to buds and leaves becoming apparent in untreated fields in Moscow area. Adults, eggs and larvae present with some larvae up to third stage. Cool, wet weather slowed down feeding activity. Total of 800 adult parasites (Tetrastichus incertus) released at 3 locations on University of Idaho farm at Moscow. (Manis, Portman). WYOMING - Larvae averaged 1,500 per 100 sweeps on untreated alfalfa in Platte, Converse and Goshen Counties. Slight to moderate damage noted in treated fields. First cutting approximately 60 percent completed. Larvae noted retarding second growth in isolated fields in Goshen County. (Marks). UTAH - Injury increasing since warmer weather, but damage to first crop well below normal to June 10, in all areas examined. (Knowlton). COLORADO - Larvae averaged 10 per 100 sweeps on alfalfa in Bent, Otero, Crowley and Pueblo Counties; few fields had 100-200 per 100 sweeps. (Schweissing). NEW MEXICO - Probably this species damaging alfalfa in northern San Juan County; adults per 25 sweeps averaged 20-30 in fields near Laplata and 8-15 in Farmington area. (N.M. Coop. Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - In sweetclover field in Lancaster County, 75 percent leaf feeding damage occurred. Other fields contained light to moderate leaf feeding damage. (Manglitz).

CLOVER ROOT WEEVIL (Sitona hispidula) - CALIFORNIA - Heavy populations occurring in alfalfa plantings in Courtland area, Sacramento County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Considerable migration of newly emerged adults from nearby grass and weed areas in Houston County; destroying small acreage of peanuts in field borders. (Glasscock, Bagby, Kimbrough).

A WEEVIL (Paragoges maculatus) - CALIFORNIA - Heavy on alfalfa flowers in Semitropic, Kern County. (T. Leigh).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Light to moderate feeding noted on soybeans at several localities on Eastern Shore. (U. Md., Ent. Dept.). NEBRASKA - Adults causing some leaf feeding damage to new soybean plants in York County. (Bergman).

BLISTER BEETLES - VIRGINIA - Epicauta fabricii (ash-gray blister beetle) adults abundant in field of alfalfa in Edinburg, Shenandoah County. (Tarpley, Grove). Adults of same species common in many fields of alfalfa in Floyd, Franklin, Pittsylvania, Mecklenburg, Lunenburg and Amelia Counties, but not believed to be sufficiently numerous to cause concern. (Tarpley).

PEA APHID (Acyrthosiphon pisum) - VIRGINIA - Very light in few fields of alfalfa checked in Floyd, Franklin, Pittsylvania, Mecklenburg, Lunenburg and Amelia Counties. Several common species of Nabidae and lady beetles, all stages, abundant in most fields checked. (Tarpley). MARYLAND - Populations generally light, 10-15 per sweep, on alfalfa checked in Frederick County. (U. Md., Ent. Dept.). MASSACHUSETTS - Still low in abundance in western area. (Shaw). OHIO - Populations increasing in northwest; averaged 25 per sweep in first-cutting alfalfa and 2 per sweep in second cutting. (Lyon). INDIANA - Adults and nymphs ranged 3-21 (averaged 13) per sweep on alfalfa in Gibson, Vanderburgh, Pike, Warrick, Spencer, Perry, Crawford and Orange Counties, southern quarter of State. In an extensive planting of alfalfa in Knox County, southwest section, adults and nymphs averaged 72 per sweep. (Bram). ILLINOIS - Populations very low, 40-260 (average 127) per 100 sweeps, in second-growth alfalfa in northwest district. (Ill. Ins. Rpt.). WISCONSIN - Counts 5-10 per sweep in regrowth alfalfa in southern counties; 10-fold increase over previous week. Predators relatively uncommon and most aphids healthy. Low percentage winged. (Wis. Ins. Sur.). MINNESOTA - Counts extremely low in alfalfa after first cutting removed. (Minn. Ins. Rpt.). OKLAHOMA - Light, 40 per 10 sweeps, on alfalfa in Caddo County. (Okla. Coop. Sur.). NEW MEXICO - Light to moderate on alfalfa in Dona Ana County; light in alfalfa checked in Animas-Cotton City area and Virden Valley, Hidalgo County. (N.M. Coop. Rpt.). COLORADO - Increased in all areas of Bent, Otero, Crowley and Pueblo Counties on alfalfa; maximum 1,500 per 100 sweeps. Predators numerous in most fields. (Schweissing). WYOMING - Adults and nymphs remain light in alfalfa in Platte, Converse and Goshen Counties; averaged 200-675 per 100 sweeps. (Marks). OREGON - Averaged 10 per sweep in 6 fields checked in Umapine area, Umatilla County; parasites, mostly Aphidius sp., average 1 per 10 aphids minimum. (Halfhill).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Winged forms appearing commonly in many regrowth alfalfa fields in Rock and western Dane Counties; as high as 3 per 10 sweeps of wingless forms found in field of alfalfa in western Dane County. (Wis. Ins. Sur.). KANSAS - None found on alfalfa in central area. (Peters). ARKANSAS - Heavy infestation locally on alfalfa in Conway County, central area; several thousand per 100 sweeps. (Ark. Ins. Sur.). TEXAS - Very light on alfalfa in Kaufman County; beneficial insects numerous. (Turney). NEW MEXICO - Generally light on alfalfa in Roosevelt County. (N.M. Coop. Rpt.). OREGON - Not found in State as of June 18. (Larson). ARIZONA - Light infestations continue in Mohave County alfalfa and in Parker area of Yuma County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Adults conspicuous in hay fields in Frederick County. (U. Md., Ent. Dept.). MASSACHUSETTS - Adults common in western area. (Shaw). INDIANA - Adults reached a maximum of 2 per 10 sweeps on alfalfa in southern quarter of State. Many fields negative. (Bram). ILLINOIS - Adults varied 10-20 (averaged 16.7) per 100 sweeps in second-growth

alfalfa in northwest district. (Ill. Ins. Rpt.). WISCONSIN - Adults becoming common in alfalfa in southern counties. Unusually high populations present in Sauk, Wood and Door Counties. Populations in southern Grant, Lafayette, Green and parts of Rock and Dane Counties somewhat higher than in past years. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - First adults of season taken June 17 on alfalfa in Frederick County. (U. Md., Ent. Dept.). MASSACHUSETTS - Slightly more numerous than in previous weeks in western area; leafhoppers generally not so numerous as in some years. (Shaw). INDIANA - Adults ranged 2-12 (averaged 5) per 10 sweeps on alfalfa in southern quarter of State. (Bram). ILLINOIS - Adults varied 0-30 (averaged 13.3) per 100 sweeps in second-growth alfalfa in northwest district. No nymphs observed. (Ill. Ins. Rpt.). WISCONSIN - Increased noticeably and few fields yellowing. Nymphs averaged as high as 5 per sweep in marginal areas of field of alfalfa in western Dane County. (Wis. Ins. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - OHIO - Building up rapidly in alfalfa throughout northwest section; average per 50 sweeps 150 in Hancock County and 100 in Lucas County. (Lyon). ILLINOIS - Adults varied 0-20 (averaged 10) per 100 sweeps in second-growth alfalfa in northwest district. No nymphs observed. (Ill. Ins. Rpt.). WISCONSIN - Most common species of plant bug present in alfalfa. Populations plentiful, including regrowth fields. (Wis. Ins. Sur.).

RAPID PLANT BUG (Adelphocoris rapidus) - DELAWARE - Present on alfalfa and clover statewide and rather common in blacklight trap collection in Sussex County. (Burbutis, Crossan). OHIO - Light populations present throughout northwest section. (Lyon).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults averaged close to 1 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Medium to heavy infestations found in alfalfa in Yuma, Maricopa and Pinal Counties. Light to medium in Graham, Mohave and Parker area of Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Alfalfa seed growers in northern Dona Ana County treated fields to prevent damage to seed. Alfalfa checked in Roosevelt County averaged 13-22 adults and nymphs per 25 sweeps. Adults averaged 8-18 per 25 sweeps in Virden Valley alfalfa, Hidalgo County. (N.M. Coop. Rpt.). COLORADO - Populations erratic on alfalfa in Bent, Otero, Crowley and Pueblo Counties; averaged 200-300 per 100 sweeps. (Schweissing). WYOMING - Adults averaged 50-100 per 100 sweeps and nymphs 75-250 per 100 sweeps in alfalfa in Platte, Converse and Goshen Counties. (Marks). OREGON - Nymphs and adults in Jackson County alfalfa averaged 50 per 10 sweeps. (Larson, Wheeler).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - MASSACHUSETTS - Collected in several forage fields in western area. (Shaw).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Medium populations in Yuma, Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Lightly infesting leaves of kudzu at Pierson, Volusia County, on May 21. (Roberts).

GARDEN WEBWORM (Loxostege similalis) - MISSOURI - Larvae averaged 1 per sweep in field of alfalfa in Jasper County, southwest, and 1 per 10 sweeps in other fields. (Houser, Thomas, Wood). TEXAS - Light, local populations causing some damage to alfalfa in Kaufman County. (Turney).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - First to third instars infesting black-eye peas and peanuts in Tift County. (Leuck). FLORIDA - Scattered on roots of field corn at High Springs, Alachua County. (Morris, June 10).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Light feeding damage to peanuts in south central and southwest areas. (Johnson). ALABAMA - Light damage observed in corn in Autauga, Wilcox and Marengo Counties. (Kirkpatrick, Jones, Farquhar).

ARMY CUTWORM (Chorizagrotis auxiliaris) - WYOMING - Large flights of adults noted in Goshen and Laramie Counties. (Marks).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - PENNSYLVANIA - Heavy on edge of clover fields in Cumberland County in late May. (Udine).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - VERMONT - Emergence started; entries noted on unsprayed trees June 9. Prime orchard pest for next few weeks. (MacCollom). NEW YORK - Emergence in cages continues in substantial numbers in western area on June 15. Although first entry in fruit occurred June 6, no appreciable numbers found until June 14 and 15. Early entries attributed to light egg deposition during warm evenings of May 23-25. Hatch will be heavy during next 3 weeks. No concern to commercial growers unless pest troublesome in 1963. Emergence started May 25 in Webster area, Monroe County; major hatch expected week ending June 20 in county. Slow but steady emergence noted in Niagara County. (N.Y. Wkly. Rpt., June 15). MASSACHUSETTS - Egg laying curtailed by cool evening temperatures ever since adult emergence. Weather now ideal and unprotected fruit could be injured. Some egg laying occurred earlier and hatching began about June 12. Hatch will probably be extended this year due to delayed egg laying and fruit will require protection for greater period than usual. (Wave). OHIO - First fully grown larvae of first brood collected under band in Wayne County, northeast. (Forsythe). MICHIGAN - Emergence and adult activity continues in Kent, Berrien and Genesee Counties. (Gilmore, Conrad, Lincoln). INDIANA - Second-generation adults not emerged as of June 19. (Cleveland). IOWA - Only one entry found in orchard south of Burlington, Des Moines County, June 10. (Iowa Ins. Inf.). MISSOURI - Fairly recent entries reported in Cape Girardeau County; reports indicate first brood will merge into second. Protection urged at all times. (Wkly. Rpt. Fr. Grs.). WISCONSIN - Eggs hatched and first-brood activity underway. First adults recovered in Door County blacklight trap week of June 7. "Stings" reported on fruit of apple in Dane County. Larval activity noted in early apple varieties in Jefferson County. (Wis. Ins. Sur.). COLORADO - First cover controls posted for apple orchards June 12 in Garfield County at Rifle and New Castle and in Delta County at Paonia and Cedaredge. Second cover posted June 18 at Austin, June 23 at Eckert and June 25 at Rogers Mesa, Delta County. OREGON - Eggs in red-ring stage May 26 in Jackson County. (Berry).

LESSER PEACH TREE BORER (Synanthedon pictipes) - NEW JERSEY - Second spray recommended for July 1 on peaches. (Ins.-Dis. Newsltr.). NEW YORK - Pupal cases readily found by June 4 in Niagara County; occasional case noted few days earlier. (N.Y. Wkly. Rpt.). MICHIGAN - Light to medium in Berrien County. (Conrad). INDIANA - Adults continue to emerge but no distinct peak yet observed. (Cleveland). IOWA - Attacked exposed trunks and branches of peach trees in southeastern area. (Iowa Ins. Inf., June 15).

PEACH TREE BORER (Sanninoidea exitiosa) - CONNECTICUT - Controls urged on peaches, plums and cherries. (Savos). MARYLAND - Well-developed larvae responsible for killing peach tree in Hyattsville, Prince Georges County. (U. Md., Ent. Dept.). INDIANA - First male recovered from insectary June 12;, field emergence expected shortly. (Cleveland).

A LEAF ROLLER MOTH (Sparganothis chambersana) - FLORIDA - Reared from peaches at Monticello, Jefferson County. (Phillips, May 21). This is first record for State and apparently first record on peach. (Kimball). Previously reared in other States from cranberries and blueberries. (ARS).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceanus) - OREGON - Serious problem in western orchards and ornamental plantings. Larvae now pupating. (Jones).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Young larvae just entering twigs in southeast area on June 14. Next brood underway. (Wkly. Rpt. Fr. Grs.). IOWA - Larvae bored into tips of peach branches in Des Moines County. (Iowa Ins. Inf., June 15). MICHIGAN - Light in Oakland and Berrien Counties. (Abel, Conrad). CONNECTICUT - Few second-brood larvae active in New Haven. (Savos). NEW JERSEY - Survey shows that moths of second brood emerging in unsprayed orchards. (Ins.-Dis. Newsltr.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - MISSOURI - Rather heavy in orchard near Columbia; examination of larvae shows present brood about over and next should appear about last of June. (Wkly. Rpt. Fr. Grs.).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Infestations on Washington County apple trees and on roadside brush appear as heavy as in 1963. Adults appearing in Marion County blacklight traps. (Larson).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Activity spotty throughout State. Only heavy infestations in Woodstock and Manchester areas; elsewhere populations low and generally confined to center of trees. (Savos). MASSACHUSETTS - Cool weather reduced buildup; expected to increase soon where not controlled. (Wave). VERMONT - Troublesome in some areas, June 15. All stages of development found. (MacCollom). NEW YORK - Early laid eggs began hatch in Monroe County. (N.Y. Wkly. Rpt., June 15). OHIO - Check apple trees in Wayne County, northeast, continue to show range of 0-3 per leaf; eggs range up to 20 per leaf. Heavy mite populations reported in commercial apple orchard in Ashtabula County; about 20 per leaf. (Forsythe). MICHIGAN - Continues buildup on fruit in Berrien and Genesee Counties. (Conrad, Lincoln). INDIANA - Increasing on apple in Knox County, southwest. Observation of 3 different blocks revealed: 2, 0.5 and 1.7 adults per leaf; 5.9, 2.4 and 4.0 immatures per leaf; 20.7, 10.4 and 13.9 eggs per leaf. Up to 20 mobile forms per leaf observed under field conditions. (Cleveland). MISSOURI - Noticeable but not in economic numbers in northwest area. (Wkly. Rpt. Fr. Grs.). OREGON - Infested 40 acres of Bartlett pears in Rosenburg area, Douglas County. (Vertrees).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CONNECTICUT - Inspections urged. Activity spotty throughout State; only heavy infestations reported in Woodstock and Manchester areas. (Savos). MASSACHUSETTS - Cool weather prevented buildup; expected to increase soon where not controlled. (Wave). VERMONT - All stages of development found. (MacCollom). INDIANA - Averaged 15 mobile forms per leaf on apple in Knox County, southwest. (Cleveland). MISSOURI - Very few in most orchards. Slight mixed population of this and Panonychus ulmi in southeast. Inspections urged. (Wkly. Rpt. Fr. Grs.).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - Adults collected in traps at Hurffville, Gloucester County, and Cranbury, Middlesex County. First catches made June 18. (Ins.-Dis. Newsltr.). MASSACHUSETTS - No adults observed but earliest emergence could occur this week. (Wave). NEW YORK - Emergence started in cages at Highland, Ulster County, June 9; some flies may have emerged as early as June 6. First noted in field in Ulster County June 12. (N.Y. Wkly. Rpt., June 15). OHIO - Adults collected from sticky board traps at Geneva, Ashtabula County, northeast, June 12. (Still). MINNESOTA - Adult emergence expected first or second week of July; traps to be placed June 20-26. (Minn. Ins. Rpt.).

CHERRY MAGGOT (Rhagoletis cingulata) - NEW YORK - Emergence started June 4 in Monroe County; adults more plentiful in Orleans County, especially June 9. Controls applied in Niagara County orchards. (N.Y. Wkly. Rpt., June 15). MICHIGAN - Light to medium in Berrien County. (Conrad). WISCONSIN - Adults noted in untended cherry orchard in Door County. (Wis. Ins. Sur.).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - WISCONSIN - Adults appeared in cherry orchards in Door County. (Wis. Ins. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - VERMONT - Activity about over. (MacCollom, June 15). RHODE ISLAND - Peak apparently passed. (Mathewson). CONNECTICUT - Few still active especially in easternmost part of State where unsprayed fruit has new punctures. One adult found in New Haven; no more injury reported from commercial orchards. (Savos). OHIO - Larval exits from dropped plums heavy period of June 15-19 at Wooster, Wayne County. Unsprayed apple trees at Madisonburg showed 100 percent infestations; averaged 6 egg-laying scars per apple. (Forsythe). Sweet cherry trees 50 percent infested at Columbus, Franklin County, central section; larvae collected from cherry fruits. (Galford, Blair). IOWA - No problem in orchard south of Burlington, Des Moines County, June 10. (Iowa Ins. Inf.).

SHOT-HOLE BORER (Scolytus rugulosus) - OREGON - Worse than usual to stone fruits in Rosenburg area, Douglas County; probably due to weakening of trees by blights, freezes, storms and other causes. (Vertrees).

APPLE APHID (Aphis pomi) - NEW YORK - Buildup on young, nonbearing orchards required controls in Clinton County. (N.Y. Wkly. Rpt., June 15). CONNECTICUT - Starting buildup in New Haven area and some found on fruit in Southington. Elsewhere activity low except for local buildups on young trees. Threat continues. (Savos). MASSACHUSETTS - Rapidly building up on terminal growth where no controls used. (Wave).

ROSY APPLE APHID (Anuraphis rosea) - NEW YORK - Very severe in some orchards in Monroe County. (N.Y. Wkly. Rpt., June 15).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Adults, eggs and newly hatched nymphs easily found on unsprayed trees; growers with trouble in past urged to inspect trees. (Savos). OREGON - Infested 40 acres of Bartlett pears in Roseburg area, Douglas County, for the first time. (Vertrees).

PERIODICAL CICADAS (Magicicada spp.) - MISSOURI - Continue active in western area. (Wkly. Rpt. Fr. Grs.).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Light on leaves and fruit of pear at St. Joseph, Pasco County. (Barber, Williams). Locally severe on pear stems and leaves at Ruskin, Hillsborough County (Hale) and moderate to severe on peach at Sorrento, Lake County (Bentley, May 22).

PEAR-SLUG (Caliroa cerasi) - DELAWARE - Present on few pear trees locally in Sussex County; causing rather noticeable feeding injury. (Burbutis, Crossan). OHIO - Caused 25 percent skeletonizing of 4 young pear trees at Toledo, Lucas County, northwest; larvae easily found on leaves. (Lyon). CALIFORNIA - Larvae medium on pear trees in Tulare, Tulare County. (Cal. Coop. Rpt.).

PLANT BUGS (Lygocoris spp.) - MASSACHUSETTS - L. quercalbae and L. caryae appeared on peaches in orchards near woods. Some injury noted on peaches in Amherst area. Earliest injury occurred June 12. Controls recommended. (Wave).

CUTWORMS - MICHIGAN - Undetermined species caused light to serious injury to many fruit crops in central and southern counties. Climbing species reported from fruit trees or blueberry plantings in Ottawa, Berrien and Shiawassee Counties. (Janes, Conrad, Wilt, Machiele, Lincoln, Belter, Nyquist, Pennock, Townsend).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Severe infestations noted in untreated blueberry areas. (In.-Dis. Newltr.). MASSACHUSETTS - First adults collected from blacklight trap night of June 13. No heavy flights due to cool weather in southeastern area. (Tomlinson).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Controls recommended on blueberries. (Ins.-Dis. Newsltr.).

BLUEBERRY MAGGOT (Rhagoletis pomonella) - NEW JERSEY - First adults observed June 18; emergence very light. Total catch in 3 fields numbered 16 adults. None caught on this date in 1963 and only 8 on June 19, 1963. First sprays recommended about June 28. (Ins.-Dis. Newsltr.).

CURRANT BORER (Ramosia tipuliformis) - NEW YORK - First adults observed in Fredonia, Chatauqua County, June 2. (N.Y. Wkly. Rpt.).

LEAFHOPPERS - OREGON - Undetermined species very abundant on cranberries and other plants in Jackson County; causing concern to growers. (Berry).

CURRANT APHID (Capitophorus ribis) - NEW YORK - Causing reddening of currant leaves in small home fruit planting in Chemung County. (N.Y. Wkly. Rpt., June 15).

ROSE CHAFER (Macrodactylus subspinosus) - NEW YORK - First adults noted feeding on Fredonia grape flower clusters in Chatauqua County June 6. (N.Y. Wkly. Rpt.).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Light to medium in Berrien County. (Conrad).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Heavy on grapevines in Delano, Kern County. (Cal. Coop. Rpt.).

PECAN APHIDS (Monellia spp.) - ALABAMA - Heavy on pecans in Mobile, Baldwin, Lee, Wilcox and other central and southern counties. Controls applied in many cases. (Eden, Farquhar, et al.). ARIZONA - M. costalis heavy on pecan trees throughout Graham County. (Ariz. Coop. Sur.). CALIFORNIA - M. costalis and M. caryae medium on pecan trees in Fresno, Fresno County. (Cal. Coop. Rpt.).

WALNUT APHID (Chromaphis juglandicola) - CALIFORNIA - Medium on walnut trees in Gonzales, Monterey County. (Cal. Coop. Rpt.).

A FILBERT APHID (Myzocallis coryli) - OREGON - Populations at very high level on Willamette Valley filberts; continued cool weather believed responsible. (Jones).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - ALABAMA - Spotted infestations noted on pecan leaves in Lee, Colbert and other counties. (Sommerville, et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - First-generation larvae approaching pupation in small, infested pecans falling from trees in Baldwin, Mobile, Autauga and Bibb Counties. (Eden, Vickery, Kirkpatrick, Odom). TEXAS - Light to moderate. Widespread in Wise County; causing damage to native trees. Damaged approximately 50 percent of nuts. (Turney).

WALNUT BLISTER MITE (Aceria erinea) - OREGON - Injury to walnut leaves in Douglas County more evident than in previous years. (Vertrees).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Severe on 1 percent of 10,000 nursery plants of sweet orange (June 9) and moderate on 25 percent of 40,600 nursery plants of Robinson tangerine at Leesburg, Lake County. (Bentley, June 12).

THRIPS - CALIFORNIA - Frankliniella occidentalis and Scirtothrips citri medium on citrus in Delano, Kern County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Most potato growers applying controls in Suffolk County. Caused serious damage to tomato plants in

Orleans County due to limited foliage of wind-whipped plants. (N.Y. Wkly. Rpt., June 15). DELAWARE - Larvae rather common and causing moderately heavy feeding injury to commercial potatoes in eastern Kent County. (Burbutis, Crossan). VIRGINIA - Big problem this year on Eastern Shore; larval activity slowed down considerably but adults beginning to emerge. (Hofmaster). GEORGIA - Heavy on potatoes in home gardens in Walton, Morgan, Gwinnett and Hall Counties. (Vanderford). MICHIGAN - Eggs and larvae present in Gratiot and Berrien Counties. (Bierlein, Belter). NORTH DAKOTA - Ranged 1-3 per plant on potatoes in Crystal area. (Schulz). WYOMING - Small numbers of larvae found on only occasional plants in potato field in Goshen County. (Marks). CONNECTICUT - Feeding on blossoms and other plant organs of tomatoes and eggplants; controls recommended. (Minnum).

PACIFIC COAST WIREWORM (Limonius canus) - Washington - Infested 28 acres of potatoes; about 25 percent of seed pieces attacked with up to 4 larvae per seed piece at George, Grant County. (Onsager).

FLEA BEETLES (Epitrix spp.) - VIRGINIA - Spring brood of E. cucumeris beginning to emerge, but scattered, on Eastern Shore. (Hofmaster). OHIO - E. cucumeris caused heavy damage to potato leaves in Pike County, south central. (Galfrod). DELAWARE - E. hirtipennis adults rather common on commercial tomatoes locally in Sussex County. (Burbutis, Crossan). WYOMING - E. tuberis adults ranged 2-3 per 100 sweeps in potato fields in Goshen County. (Marks).

FLEA BEETLES - VERMONT - Numerous on potatoes and tomatoes. (MacCollom, June 15). CONNECTICUT - Active on wide variety of vegetables. (Minnum). NEW YORK - Caused serious damage to tomato plants in Orleans County due to limited foliage on wind-whipped plants. (N.Y. Wkly. Rpt., June 15). MINNESOTA - Relatively high on potatoes in Clay County. (Minn. Ins. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Widely distributed in Weld County; on early potatoes in trace numbers with unspecified aphids. Buildup on bindweed and matrimony-vine of both reported. (Urano, Berry). In Bent and Otero Counties, psyllids continue to appear in large numbers on wild hosts; 100-300 adults per 100 sweeps. Range 0-6 per 100 sweeps on potatoes and 0-14 per 100 sweeps on tomatoes. (Schweissing). WYOMING - Adults averaged 3 per 100 sweeps in untreated potato fields in Goshen County. None found in treated fields. (Marks).

POTATO LEAFHOPPER (Empoasca fabae) - VIRGINIA - Dry conditions extremely favorable on Eastern Shore; buildup expected. Damage relatively light to date. (Hofmaster). IOWA - Present on potatoes in full bloom in Des Moines County. (Iowa Ins. Inf., June 15). MISSOURI - Ranged 2-3 per plant in commercial potato fields in Ray County, west central. (Houser, Thomas, Wood).

LEAFHOPPERS - MINNESOTA - High populations noted on potatoes. (Minn. Ins. Rpt.). CONNECTICUT - Active on wide variety of vegetables. (Minnum).

EUROPEAN CORN BORER (Ostrinia nubilalis)- NORTH CAROLINA - Larvae and pupae noted on potatovines in New Hanover County; det. by D. A. Mount. (Jennings). First ARS record for county.

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - Infested about 8-10 percent of untreated planting of bell pepper at Gainesville, Alachua County. (Habeck). ALABAMA - Continues extensive feeding in home gardens in Lee County. (Barwood).

VARIEGATED CUTWORM (Peridroma saucia) - PENNSYLVANIA - Quite abundant on tomatoes in Erie County. (Adams, May 27).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Light to moderate on tomatoes in south central and southwest. (Johnson).

HORNWORMS (Protoparce spp.) - NEW MEXICO - Damaging tomatovines in fields near Columbus, Luna County. (N.M. Coop. Rpt.). DELAWARE - First instars present on peppers locally in Sussex County. (Burbutis, Crossan).

POTATO TUBERWORM (Gnorimoschema operculella) - VIRGINIA - Mining potato foliage on Eastern Shore; few noted. (Hofmaster). MICHIGAN - Diligent survey of potato fields revealed no adults nor larvae present this season in Monroe County. (Newman).

SEED-CORN MAGGOT (Hylemya platura) - WASHINGTON - Larvae attacking potato seed pieces in 28-acre field at George, Grant County. Appear to be secondary rather than primary cause of delay. (Onsager).

PEPPER MAGGOT (Zonosemata electa) - NEW JERSEY - Controls recommended for last week of June. (Ins.-Dis. Newsltr.).

FALSE CHINCH BUG (Nysius ericae) - MISSOURI - Ranged 5-75 per leaf (congregated at midrib) in isolated spots throughout commercial potato fields in Ray County, west central. Causing heavy damage in infested areas. (Houser, Thomas, Wood).

Aphids on Potatoes in Maine - Population very small on potato foliage on Aroostook Farm, Presque Isle, Aroostook County. POTATO APHID (Macrosiphum euphorbiae) predominates followed by BUCKTHORN APHID (Aphis nasturtii). Spring migration in progress. (Shands).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Active on radishes on muck soil in Rome, Oneida County. Noted in several seedbeds at Canandaigua, Onterio County. Caused more than usual number of complaints in Monroe County. Prevalent in all areas of Niagara County even in seedbeds treated with recommended chemicals. (N.Y. Wkly. Rpt., June 15). VERMONT - Injury prevalent in home gardens around Burlington. (MacCollom, June 15).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Egg masses and larvae noted in Niagara County; larvae ranged from just hatched to 0.75 inch. Easily found on cabbage. (N.Y. Wkly. Rpt., June 15). VIRGINIA - Causing localized damage to cole crops on Eastern Shore. (Hofmaster). MICHIGAN - Adults active in Gratiot and Van Buren Counties. (Bierlein, Earle).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy on cabbage and collards in home gardens in Hall and Walton Counties. (Vanderford). ALABAMA - First generation appearing on cabbage in Cullman County; 5-6 larvae per plant. (Canardy).

DIAMONDBACK MOTH (Plutella maculipennis) - VIRGINIA - Larvae causing localized damage to cole crops on Eastern Shore. (Hofmaster).

CABBAGE APHID (Brevicoryne brassicae) - OHIO - Moderate to heavy on cabbage in 35-acre commercial field in Lucas County, northwest, poor insecticide coverage promoted population increase. (Lyon).

HARLEQUIN BUG (Murgantia histrionica) - GEORGIA - Heavy on turnips and collards in Hall County. (Vanderford). ALABAMA - Continues extensive feeding in home gardens in Lee County. (Barwood).

PEA APHID (Acyrthosiphon pisum) - WISCONSIN - Shows marked increase on late peas; ranged 3 per 10 sweeps in Rock and Walworth Counties to 23 per 10 sweeps in Dane County. Peas ranged 6-10 inches high. Little change noted on podded peas. (Wis. Ins. Sur.).

BEAN APHID (Aphis fabae) - DELAWARE - Present on snap beans locally in Sussex County. (Burbutis, Crossan).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Increased noticeably on beans in southern area. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Moderate to heavy on beans in southern area. (Johnson). IOWA - Skeletonized leaves of garden beans. (Iowa Ins. Inf., June 15).

BEAN LEAF BEETLE (Cerotoma trifurcata) - IOWA - Garden beans show early damage. (Iowa Ins. Inf., June 15).

CONCHUELA (Chlorochoa ligata) - TEXAS - Causing damage to black-eye peas in La Salle County area. (Wolfenbarger).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Infesting onions in Dry Lake area south of Nampa, Canyon County. Generally confined to "seed-to-seed" fields (an area where bulbs raised next to seed fields for years) and to commercial processing onions known as "boilers". The latter were not furrow treated. First surface control for adults applied June 3. This infestation probably started before controls applied. (Scott). COLORADO - Damaged onions reported in Ault area, Weld County, and Fort Collins area, Larimer County; infestations heavy. (Williams, Urano, Daniels). MINNESOTA - Damage severe in Carver County; onions not treated for maggots. (Minn. Ins. Rpt.). NEW JERSEY - Damage very heavy on onions on farm in Sussex County muck area. Flies of second generation increasing in numbers at Cedarville; control of adults recommended. (Ins.-Dis. Newsltr.). Collections at Cedarville June 4, 8 and 15 were zero, 31 and 146, respectively. Collections at Great Meadows, Warren County, for same dates were 46, 46 and 12. (Ins.-Dis. Newsltr.). NEW YORK - Active on seed and set onions in Oneida and Madison Counties. Unspecified maggots caused moderate to heavy damage to onions in Orange County. (N.Y. Wkly. Rpt., June 15).

ONION THRIPS (Thrips tabaci) - NEVADA - Medium to heavy on garlic in Reno, Washoe County. (Yamamoto). COLORADO - Present in many Otero County onion fields; 0-30 per plant. Increasing rapidly on seeded onions. (Schweissing).

THRIPS - NEW MEXICO - Remain light in most late onion fields; however, number of fields checked show definite buildup compared with condition 3 weeks ago. (N.M. Coop. Rpt.). NEW JERSEY - Becoming numerous in some onion fields. (Ins.-Dis. Newsltr.).

ASPARAGUS BEETLES (Crioceris spp.) - DELAWARE - C. duodecimpunctata adults fairly common on asparagus foliage in Kent County. (Burbutis, Crossan). RHODE ISLAND - C. asparagi and C. duodecimpunctata numerous in planting in Charlestown, Washington County. (Mathewson, Sorensen).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Larvae numerous in sugar beet leaves throughout Platte, Converse and Goshen Counties. (Marks). NEW JERSEY - Very noticeable in home gardens. (Ins.-Dis. Newsltr.). NEW YORK - Present in greater numbers and appeared earlier than usual; fields of processing beets infested while plants still quite small. Controls urged. (N.Y. Wkly. Rpt., June 15). CONNECTICUT - Continues active; controls recommended. (Minnum).

BEET LEAF MINER (Pegomya betae) - CONNECTICUT - Continues active; controls recommended. (Minnum).

LEAF MINER FLIES - MICHIGAN - Infesting sugar beets in Monroe and Saginaw Counties. (Janes, Wells).

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Blacklight traps indicate moth flights continue high in Weld County at Roggen, Windsor and Greeley. Larvae taken in Ault and Gill-Galeton areas. Numbers sufficient to justify control. (Hyde, Urano). Noted in many sugar beet fields in Otero County; 0-50 per 100 sweeps; controls underway. (Schweissing).

STRIPED FLEA BEETLE (Phyllotreta striolata) - WYOMING - Large population causing severe damage to sugar beet seedlings in field in Platte County. (Marks).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Most sugar beet fields treated in Delta, Montrose and Mesa Counties; populations reduced. (Bulla). UTAH - Now present in northern area from long-distance movement. (Knowlton).

POTATO APHID (Macrosiphum euphorbiae) - NEW MEXICO - Heavy on lettuce in home gardens in Dona Ana County. (N.M. Coop. Rpt.).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Moderate on watermelons and cantaloups in Jefferson County, south central; light to heavy on garden cucurbits in Bryan, Rogers, Washita and Kiowa Counties. (Okla. Coop. Sur.). TEXAS - Caused heavy, widespread damage to watermelons in Robertson, Llano and Milam Counties. (Texas Coop. Rpt., Meisch). NEW MEXICO - Adults becoming abundant on squash in home gardens at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

CUCUMBER BEETLES - CONNECTICUT - Appearing on many vine crops; controls recommended to prevent transmission of wilt. (Savos). NEW YORK - Reported in several areas of Niagara County. (N.Y. Wkly. Rpt., June 15). IOWA - Unspecified species destroyed early plantings of cucumbers in southeast; Acalymma vittata overwinters in State but Diabrotica undecimpunctata howardi migrates from States to the south. (Iowa Ins. Inf., June 15).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - COLORADO - Ranged 0-6 per cantaloup plant in Bent, Otero and Pueblo Counties; infestations of economic concern. (Schweissing). ALABAMA - Extensive feeding continues in home gardens in Lee County. (Barwood). MASSACHUSETTS - Controls needed to prevent bacterial wilt. (Wave).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Damaging some cantaloup fields in Yuma County; treatment necessary in 1 field. (Ariz. Coop. Sur.).

PICKLEWORM (Diaphania nitidalis) - FLORIDA - Infested over 90 percent of one-third acre planting of untreated summer squash at Gainesville, Alachua County. (Habeck).

MELON APHID (Aphis gossypii) - OKLAHOMA - Light on watermelons and cantaloups in Jefferson County. (Okla. Coop. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - UTAH - Adults numerous in North Ogden, Weber County, strawberry patch; feeding on ripe strawberries. (Marsh, Knowlton).

A WEEVIL (Peritelinus oregonus) - OREGON - Adults caused leaf injury to 20 percent of 10-acre strawberry planting in Linn County. (Rosenstiel).

MEADOW SPITTLEBUG (Philaenus spumarius) - IDAHO - Nymphs becoming abundant on variety of host plants in northern area; some distortion and stunting noted. (Manis). WISCONSIN - Spittle masses, probably by this species, reported unusually abundant on strawberry plants in Jackson County. (Wis. Ins. Sur.).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - IOWA - None noted in commercial strawberry plantings in southeast area in contrast with untreated home garden strawberries. (Iowa Ins. Inf., June 15). VIRGINIA - Several infestations reported on strawberries on Eastern Shore. (Hofmaster).

STALK BORER (Papaipema nebris) - VIRGINIA - Several infestations reported on strawberries on Eastern Shore. (Hofmaster).

A STRAWBERRY SAWFLY - IOWA - None seen in commercial strawberry planting in southeast area in contrast with unsprayed home garden strawberries. (Iowa Ins. Inf., June 15).

SLUGS - NEW YORK - Several reports of injury to strawberries noted in western area. (N.Y. Wkly. Rpt., June 15).

CARROT WEEVIL (Listronotus oregonensis) - NEW JERSEY - Heavy on carrots on muck soil in Warren County; controls recommended. (Ins.-Dis. Newsltr).

A BUD MITE (Aceria peucedani) - IDAHO - An eriophyid mite, probably this species, infesting carrot seed fields in southwestern area. In 8 commercial fields, 50-80 percent of plants infested. Most plants lightly infested, showing some leaf distortion; but 1-5 percent of plants heavily infested and will produce little or no seed. (Scott).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - VIRGINIA - More numerous on sweetpotatoes on Eastern Shore than in past several years. Many growers treated. (Hofmaster).

GOLDEN TORTOISE BEETLE (Metriona bicolor) - VIRGINIA - About normal numbers on sweetpotatoes on Eastern Shore. (Hofmaster).

WEEVILS - OREGON - Control of Brachyrhinus sulcatus, B. rugosostriatus, B. ovatus and Dyslobus spp. serious problem this year in Willamette Valley mint fields. Usual control methods ineffective. (Morrison).

HOP APHID (Phorodon humuli) - OREGON - Medium numbers appearing in Benton County hop orchards; overwintering adults present. (Morrison).

CUTWORMS - NEW YORK - Heavy on greenhouse tomatoes in Orleans County; many flats with 5-50 percent loss. (N.Y. Wkly. Rpt., June 15). MICHIGAN - Caused light to serious injury to many vegetable crops in central and southern counties. Damaging field and vegetable crops in Marquette, Gladwin, Ingham, Ottawa, Shiawassee, Berrien and St. Clair Counties. Sugar beets damaged in St. Clair County. (Janes, Conrad, Wilt, Machiele, Lincoln, Belter, Nyquist, Pennock, Townsend).

WHITEFLIES - CONNECTICUT - Very abundant on vine crops, many new strawberry plantings and on tomatoes. Controls urged. (Minnum).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Apparently increasing on vegetables throughout State; adults averaged 1 or 2 per sweep on late-planted peas and on potatoes in New Castle County. (Burbutis, Crossan).

SPIDER MITES - VIRGINIA - Showing signs of increasing on beans on Eastern Shore. (Hofmaster). ARIZONA - Spotted infestations of Tetranychus spp. damaging cantaloups in Yuma County; some fields required treatment. (Ariz. Coop. Sur.).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - IDAHO - Adults abundant on weed hosts and many garden plants in Moscow area; damage in some gardens extensive. (Manis).

GRASSHOPPERS - IDAHO - Newly emerged nymphs of unidentified species extremely numerous in some home gardens in Canyon County causing considerable damage. (Waters).

TOBACCO INSECTS

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

A WEEVIL (Trichobaris sp.) - NORTH CAROLINA - Adults reported feeding on tobacco in Columbus County. (Raper, Rabb).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Active in several counties. (Cott. News Ltr., June 16). SOUTH CAROLINA - Leaving hibernation in Coastal Plain and lower Piedmont where general rains have occurred. Some high adult populations reported where squares appearing. Percent punctured squares already up to 10-13 percent. (Cott. Ltr., June 15). Emergence of overwintered weevils at peak in Florence area. Untreated fields badly infested and entire top crop could be lost. Adults ranged 200-1,000 per acre in untreated fields; none found in treated plots. (Taft et al.). GEORGIA - Percent punctured squares 2-65 (averaged 13) in south central and southwest areas. Most cotton squaring freely, with some older cotton setting bolls. (Johnson). Percent punctured squares 1-10 in 60 percent and 11-25 in 2 percent of 1,810 fields checked in 23 counties by scouts. No weevils found in 21 percent of fields. (Jordan). ALABAMA - Light to moderate, spotted infestations continue. Delayed square formation by late cotton delayed egg laying by overwintered weevils. Normal "hatch out" of first generation weevils should occur in light to medium numbers from southern to northern areas from about June 28 to July 15. (McQueen). MISSISSIPPI - Light in most areas. (Bennett, Young; June 16). Average percent punctured squares in delta area 2.4 in infested fields. (Pfrimmer et al.). TENNESSEE - Only 3 weevils captured on flight trap board at Ames Plantation, Grand Junction, Hardeman County. From 95 to 99 percent of all overwintered weevils out of hibernation and in cotton fields. (Thomas, June 17). Most overwintered weevils believed in cotton fields. Square counts not made. Light populations observed in Hardin, Chester, McNairy, Hardeman and Fayette Counties. First-generation weevils expected by third week of July. (Locke). ARKANSAS - Very light in northeast and east central areas. Only one live weevil found in above areas (Monroe County) during field work with 68 cotton insects scouts. Punctured squares very low, less than 1 percent, with most fields having no punctured squares. Cotton too young for squaring in more than one-half of fields. (Ark. Ins. Sur.). OKLAHOMA - Punctured squares observed in Jefferson County; first report of season. (Okla. Coop. Sur.). TEXAS - General increase reported from Rio Grande Valley. Activity also increasing below caprock in western area, with overwintered weevils reported from Dickens, Fisher, Garza and Motley Counties. Activity remains generally light in other areas. (Texas Coop. Rpt.).

THRIPS - SOUTH CAROLINA - Have been very damaging to cotton throughout State. Some growers report damage greatest ever observed. (Cott. Ltr., June 15). ALABAMA - Appearing in large numbers over widespread central and northern areas in late planted and replanted cotton which represents an extensive amount of acreage. Migrating to young cotton from maturing hay crops, pastures and road banks under drought stress and especially from Johnson grass. (Price, McCall, Dill, Morriss, Walton,et al.). MISSISSIPPI - Reported on cotton in most areas of State. Infestations ranged from light to heavy, with most in medium to heavy catagory. (Bennett, Young; June 16). TENNESSEE - Damage moderate after cold weather on cotton not treated in Madison County. (Butler, June 17). Damage being helped by weather in Obion County. (Martin, June 17). MISSOURI - Light and noneconomic on cotton in southeast. (Harrendorf, Jones). OKLAHOMA - Counts of Frankliniella spp. 50-160 per 100 plants in Grady, Jefferson, Caddo, Kiowa, Jackson and Tillman Counties. (Okla. Coop. Sur.). TEXAS - Moderate to heavy infestations of several species reported from Deaf Smith, Swisher, Cochran, Lynn, Bailey, Floyd, Hale, Hockley, Garza, Lamb, Crosby, Dickens, Hall, Hardeman and Childress Counties, with some counties reporting the heaviest populations in several years. Some late-planted fields in central area also heavily infested. (Texas Coop. Rpt.). NEW MEXICO - Moderate to heavy infestations found in most cotton checked in Bethel-Portales area, Roosevelt County; treatments underway or planned. (N.M. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Moderate infestations reported from several Cameron County fields. (Texas Coop. Rpt.). Over 300 larvae per acre reported from fields in Matagorda County. (Texas Coop. Rpt.; Vestal, Sparks). ARIZONA - Emergence of moths continues heavy from experimental cages at Safford, Graham County, with total emergence of 358 moths. Live larva found in a field at Thatcher, Graham County, on June 19. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp. et al.) - NORTH CAROLINA - Some damage noted in southern part of Coastal Plain. (Cott. News Ltr., June 16). SOUTH CAROLINA - Abundant throughout Coastal Plain. Many eggs and small larvae present in untreated cotton in Allendale County. (Cott. Ltr., June 15). GEORGIA - Counts in south central and southwest areas; eggs 3-11 (average 6) and larvae 1-6 (average 4) per 100 terminals. (Johnson). Twenty-four scouts inspected 1,810 fields in 23 counties; eggs per 100 terminals 1-10 in 70 percent of fields and 11-25 in 4 percent of fields; larvae per 100 terminals 1-3 in 35 percent of fields and 4-10 in 10 percent of fields. (Jordan). MISSISSIPPI - Few appearing in older cotton. Eggs averaged 4 per 100 terminals in one Jeff. Davis County field. Larvae reported in Jeff. Davis, Washington, Coahoma, Leflore, Tallahatchie and Humphreys Counties. Beneficial insects present in most fields, but numbers dropping off because of treatments. (Bennett, Young; June 16). ARKANSAS - Very light in fields checked in northeast and east central areas; only an occasional egg or larva found. Somewhat more prevalent in southern area; highest counts 21 eggs per 100 terminals in Lafayette County field, southwest. (Ark. Ins. Sur.). TEXAS - Activity increased in lower Rio Grande Valley with damage ranging from light to severe. Increasing numbers of eggs and small larvae being found in most areas of State. (Texas Coop. Rpt.).

BOLLWORM (Heliothis zea) - ARIZONA - Populations increasing in western Pinal County and in Pima County; some controls necessary in Pima County. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - GEORGIA - Very light infestations on cotton in Mitchell and Sumter Counties. (Johnson). TEXAS - Light in Dickens and Midland Counties. (Rummel, Green). ARIZONA - Continues light in Yuma, Pinal, Maricopa and Pima Counties; some treatments necessary in last 2 counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light to moderate infestations on cotton in south central and southwest areas, with most infestations light. (Johnson).

COTTON SQUARE BORER (Strymon melinus) - TEXAS - Light damage locally in south and north central areas. (Texas Coop. Rpt.).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Considerable activity continues in cotton and other crops in Lee, Marengo and other central area counties; approximately 100 acres of cotton and 500 acres of corn destroyed in Marengo County. (Miller, Barwood, et al.).

COTTON FLEAHOPPER (Psallus seriatus) - OKLAHOMA - Counts per 100 terminals 10 in Grady County, 40 in Jefferson County and 200 in Kiowa County. (Okla. Coop. Sur.). TEXAS - Increasing in central area and some activity noted in older cotton in Dickens, Midland and Young Counties. Infestations variable but some fields in all areas being damaged and controls applied. (Texas Coop. Rpt.). Infestations per 100 terminals in McLennan and Falls Counties averaged 17.1 in treated fields and 35.9 in untreated fields; overall average 20.7 compared with 5.0 corresponding week of 1963. (Cowan et al.).

A BLACK COTTON FLEAHOPPER (Spanogonicus albofasciatus) - NEW MEXICO - Appearing in cotton in southern counties; infestations very light in cotton checked in Dona Ana, Luna and Hidalgo Counties. (N.M. Coop. Rpt.). ARIZONA - Populations in cotton continue heavy in Pima, Pinal and Maricopa Counties and increasing in areas of Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Light populations on cotton in Bard area, Imperial County. (L. Stromberg).

FLEAHOPPERS - MISSISSIPPI - Found in cotton in Oktibbeha, Monroe, Chickasaw, Leflore and Issaquena Counties and in Stoneville area. Most infestations light, with only 2 fields reported as having heavy infestations. (Bennett, Young; June 16). Averaged 1.67 per 100 sweeps in delta counties; black fleahoppers found in 2 fields. (Pfrimmer et al.). TENNESSEE - Damage moderate to severe in sections of Madison County. (Butler, June 17).

GARDEN FLEAHOPPER (Halticus bracteatus) - FLORIDA - Collected on seedling cotton at Vero Beach, Indian River County. (Wagner, June 10).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Found in 17 of 29 fields checked in delta area; averaged 3.41 per 100 sweeps in infested fields. (Pfrimmer et al.). TENNESSEE - Causing some blasting of young squares in southern counties, western area; damage light so far. (Locke).

LYGUS BUGS (Lygus spp.) - TEXAS - Damaging some fields of cotton in Limestone and Collin Counties. (Edwards). ARIZONA - Populations remain light in Pima, Pinal, Maricopa, Graham, Yuma and Mohave Counties. Small number of damaged squares found in some areas. (Ariz. Coop. Sur.).

APHIDS - SOUTH CAROLINA - Continue to increase in many fields of unprotected cotton. Most damage noted in Coastal Plain counties; however, also present in some upper Piedmont areas. (Cott. Ltr., June 15).

COTTON APHID (Aphis gossypii) - MISSOURI - Infesting isolated spots in few southeast area fields. (Harrendorf, Jones). ARKANSAS - Numbers low; parasitism important controlling factor. (Ark. Ins. Sur.). TEXAS - Light, local populations present in Nolan County. (Texas Coop. Rpt.).

GRASSHOPPERS - TENNESSEE - Causing light marginal injury to cotton in some fields in southern counties, western area. (Locke). TEXAS - Damage to marginal areas of cotton by several species reported from east, south central and upper coastal areas of State. (Texas Coop. Rpt.).

DARKLING BEETLES - TEXAS - Large numbers reported from Garza County. (Rummel).

FLEA BEETLES - MISSISSIPPI - Reported damaging stands of cotton in Union and Attala Counties. (Bennett, Young; June 16).

SPIDER MITES - FLORIDA - Tetranychus telarius taken on cotton in a greenhouse at Orlando, Orange County. (Sutton, June 3). NORTH CAROLINA - Activity observed; close inspection of field recommended. (Cott. News Ltr., June 16). SOUTH CAROLINA - Reported in Berkeley, Marlboro, Orangeburg, Saluda and York Counties. (Cott. Ltr., June 15). TENNESSEE - Occurring in borders of some fields in southeast. (Harrendorf, Jones). ARIZONA - Tetranychus spp. damaging cotton in scattered areas of Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Heavy populations of T. telarius on cotton in Firebaugh area, Cantua Creek and Dos Palos areas, Fresno County. (L. Stromberg).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Surveys throughout State by Federal and State personnel revealed 14 infested pines at 11 private homes in Portland area of Multnomah County. All infested trees and those adjoining have been destroyed; repeated surveys of area revealed no further infestations. (Larson). PENNSYLVANIA - Abundant on Scotch pine in northeast. (Gesell).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Second-generation larvae in first to third stages in Payne County. (Okla. Coop. Sur.). ARKANSAS - Emergence of overwintering brood was heavy and sudden, but progeny production and survival of first larval generation relatively light; probably due to small amount of new growth on which newly emerged first-generation larvae could feed. Consequently, first-generation damage lighter than expected. Emergence of second adult brood began in south about May 18. Larvae reaching full growth in northern part of State and adults should emerge about June 1. Tree growth has been rapid during past month, so second larval brood will have ample current growth on which to feed. (Ark. For. Pest Rpt., June).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Larvae in middle and late stages in northeast area. (Minn. Ins. Rpt.).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEW YORK - Infestation apparently extensive on homeowner ornamental spruces in Chemung County airport area; larvae and pupae present. (N.Y. Wkly. Rpt., June 15).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ARKANSAS - Some increase reported, but infestations limited to spots up to half acre in 1-2 locations. Because of lack of vigor from drought during 1963, some plantations still very susceptible to infestation. Sites of fires during past winter also hazard locations. Salvage now underway in many locations still best control under present conditions. (Ark. For. Pest Rpt., June). TEXAS - Damage to loblolly and shortleaf pines reported from San Jacinto and southeastern Houston Counties. Control operations performed on National forests. Damage occurring in areas recently logged. (Texas For. Pest Comm., May Rpt.; Williamson).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Activity increased slightly during May; new, active infestations located in Hardin, Jasper, Orange, Polk and Tyler Counties; aerial detection flights conducted over area of infestation. Activity increasing; spot size becoming larger, with fresh attacks occurring on green trees in groups up to 30 trees per spot. (Texas For. Pest Comm., May Rpt.; Williamson).

ENGRAVER BEETLES (Ips spp.) - ARKANSAS - Some increase reported; infestations limited to local spots up to 0.5 acre at 1 or 2 locations. Some plantations still very susceptible because of lack of vigor from drought during summer of 1963. Last winter's fire sites also hazard locations for infestations. Salvage in many locations still best control measure under present conditions. (Ark. For. Pest Rpt., June). TEXAS - Group killing by I. avulsus, I. grandicollis and I. calligraphus of 10-15 trees per spot reported from eastern Cass and northwestern Harrison Counties. These areas being watched for further activity; no control yet planned. (Texas For. Pest Comm., May Rpt.; Hamman).

SPRUCE GALL APHIDS (Chermes spp.) - IDAHO - C. cooleyi abundant on Douglas-fir and spruces in Moscow area, Latah County. Galls quite numerous on blue spruce located next to Douglas-fir. (Manis). COLORADO - C. cooleyi winged forms appearing on Douglas-fir in Jefferson and Larimer Counties. (Jenkins). NEW YORK - C. abietis apparently infesting more than usual number of spruce trees in Suffolk County. (N.Y. Wkly. Rpt., June 15). RHODE ISLAND - New galls of C. cooleyi and C. abietis well developed and causing concern to homeowners statewide. (Mathewson).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Most common aphid species noted in east central area. (Wis. Ins. Sur.). MINNESOTA - Noticeable on white pine in northeast and east central areas. An unidentified species also noticeable on red pine. (Minn. Ins. Rpt.).

PINE APHIDS (Cinara spp.) - PENNSYLVANIA - C. palmerae heavy on Norway spruce in Centre County. Det. by J. O. Pepper. (Udine). WASHINGTON - What is probably Cinara sp. moderately attacking grand fir in Christmas tree planting in Vancouver, Clark County; causing needles to drop. (Shanks).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Crawlers nearly all emerged in west central counties; not yet emerging in Bavfield County. Many lady beetle larvae noted in both infestations. (Wis. Ins. Sur.). MINNESOTA - Eggs hatching and crawlers moving to new foliage in east central area. Egg laying should continue for another 7-10 days. (Minn. Ins. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEBRASKA - Infesting pine in Deuel County. (Bergman). NEW YORK - Crawlers settled in Erie County. (N.Y. Wkly. Rpt., June 15). VERMONT - Crawlers active. (MacCollom, June 15).

SPITTLEBUGS - WISCONSIN - Aphrophora saratogensis nymphs in fifth stage in Adams County, with some drop in population noted. Populations of A. parallela high in parts of Waupaca County; nymphs in last stage on June 8 at a site in Adams County. (Wis. Ins. Sur.). ARKANSAS - Unspecified species unusually active on pines in Malverne-Fordyce-Sheridan area (central); less so in other localities, but above normal in wide areas of State. (Ark. For. Pest Rpt., June).

GALL MIDGES - IDAHO - Dasyneura gleditschiae becoming numerous in southwestern area (Scott); abundant on Moraine honeylocust in Boise, Ada County (Peterson). Probably Contarinia pseudotsugae, widespread throughout Latah County on ornamental and Christmas tree plantings of Douglas-fir; considerable damage evident. (Futter).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MISSOURI - Larvae feeding on shortleaf pines in Barry County, southwest. (Gass, Capps; June 9). MINNESOTA - Adults still present and egg laying continues on roadside jack pine. (Minn. Ins. Rpt.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - PENNSYLVANIA - Very heavy on Scotch pine at South Canaan, Wayne County, June 9. Large number of trees stripped except for current foliage. (Andreychick).

CONIFER SAWFLIES - RHODE ISLAND - Larvae damaging pine in Johnston, Providence County. (King, Mathewson). NEW YORK - Damage to Scotch pine by unspecified species extensive in Oneida County. (N.Y. Wkly. Rpt., June 15). ARKANSAS - Larvae of Neodiprion taedae linearis entered soil to pupate; adults will emerge next October to deposit eggs on needles. Aerial survey to determine severity and extent of infestations in 1964 conducted April 20-22 and included parts of Union, Ouachita, Calhoun, Bradley, Drew, Dallas and Ashley Counties. Total area covered was approximately 1,130,300 acres. Active infestations observed in 5 of the 7 counties; none observed in Dallas or Ouachita Counties. For first time in 15 years, infestations observed south of Ouachita River in Union County. Total acreage infested approximately 679,200 acres; most in Calhoun and Bradley Counties. Very light infestations in Union County were widespread and often difficult to detect. Light infestations also observed in Washington and Benton Counties. (Ark. For. Pest Rpt., June).

SPRUCE SPIDER MITE (Oligonychus ununguis) - RHODE ISLAND - Very heavy on ornamental spruce in Westerly, Washington County. (Mathewson).

A SPIDER MITE (Oligonychus milleri) - PENNSYLVANIA - Infested Scotch pines in Indiana County easily noted by lighter green color. Det. by R. Snetsinger. This is first report of species in State. (Udine, June 6).

ELM LEAF BEETLE (Galerucella xanthomelaena) - RHODE ISLAND - Adult feeding common on elm statewide. (Mathewson). NEW YORK - First egg hatch occurred at Ithaca about June 9. Causing some concern in Niagara County. (N.Y. Wkly. Rpt., June 15). ARKANSAS - Emergence of overwintering adults terminated; first-generation larvae present on elms; older larvae reaching full growth. Because of prolonged adult emergence pattern, spray treatments still effective in reducing populations. (Ark. For. Pest Rpt., June). Late-stage larvae, pupae and adults observed in Lee County, east central. (Ark. Ins. Sur.). KANSAS - Activity low on elms in Barton County, central area. (Martinez). NEBRASKA - Larvae damaging leaves of elms in Sarpy County. This is a new county record. (Bergman). NEVADA - Adults, eggs and first-stage larvae heavy in Lovelock, Pershing County, and in Reno-Sparks area, Washoe County. (Cooney). OREGON - Injury to elms widespread in Jackson County; adults numerous and laying eggs. (Westergard, McLaughlin).

A WEEVIL (Deporaus glastinus) - CALIFORNIA - Adults heavy on terminal buds of oaks in Orinda, Contra Costa County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Melalgus confertus) - OREGON - Attacking maple and ornamental plum in Roseburg area of Douglas County. (Vertrees).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - WISCONSIN - Defoliation reported from areas from northwest section to Portage, Columbia County. Some pupation underway in northwest and should be about complete further south. (Wis. Ins. Sur.). MINNESOTA - Present in late larval stages; pupation beginning. Populations very light and scattered in areas of previous infestation in northeast. (Minn. Ins. Rpt.).

UGLY-NEST CATERPILLAR (Archips cerasivoranus) - WISCONSIN - Webbing of choke cherry leaves conspicuous in parts of Rock and Walworth Counties. Larvae nearly full grown June 16. (Wis. Ins. Sur.). NEW YORK - Well-developed tent noted on wild cherry at Ithaca June 15. (N.Y. Wkly. Rpt.).

GYPSY MOTH (Porthetria dispar) - VERMONT - Larvae severe in North Burlington, Chittenden County, and other areas of State. (MacCollom, June 15). PENNSYLVANIA - Spraying completed June 5 on 18,360 acres in Monroe, Pike and Northampton Counties. (Jeffery).

SATIN MOTH (Stilpnotia salicis) - VERMONT - Infesting poplar along edge of Lake Champlain in vicinity of Burlington, Chittenden County. (MacCollom, June 15).

ELM SPANWORM (Ennomos subsignarius) - GEORGIA - Populations very low in mountainous areas of State; egg parasites very abundant. (Tsao).

PALE TUSSOCK MOTH (Halisidota tessellaris) - ALABAMA - Appearing on hickory in Dog River area of Mobile County. (Simms, Seibels).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - First activity of season noted on pin oak in Stillwater, Payne County. (Okla. Coop. Sur.).

GREGARIOUS OAK LEAF MINER (Cameraria cincinnatiella) - INDIANA - Becoming evident in leaves of English oak in Tippecanoe County, west central. (Schuder).

BOXELDER TWIG BORER (Proteoteras willingana) - NORTH DAKOTA - Considerable evidence of damage to boxelder twigs observed in Bottineau area. (Frye).

CARPENTERWORM (Prionoxystus robiniae) - NORTH DAKOTA - Larvae active in ash trees in Hettinger area. (Frye).

CANKERWORMS - VERMONT - Heavy on elm along Connecticut River in Newbury, Orange County. (MacCollom, June 15). NEW YORK - Damage continues serious and widespread in Erie County. (N.Y. Wkly. Rpt., June 15). WISCONSIN - Reports

indicate heavy defoliation of maple and oak in Wood County and in area near Lodi, Columbia County. Observations revealed only few larvae still present; most pupated. (Wis. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW YORK - Larvae causing heavy damage to willow in Albany area. (N.Y. Wkly. Rpt., June 15). WISCONSIN - Larvae fairly abundant on few elms in Eau Claire County area. (Wis. Ins. Sur.).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - WISCONSIN - Heavy in Walworth County; maples and elms being killed in Elkhorn and Delavan; plans underway for spraying in late June. Populations generally high in southeast. Eggs began hatching June 16 in Rock County. Lady beetle larvae, probably Hyperaspis signata, noted feeding heavily on scales at Madison. (Wis. Ins. Sur.). OHIO - Light to moderate on maples in Hardin County, northwest. (Lyon). NEW JERSEY - Crawlers active. (Ins.-Dis. Newsltr.).

EUROPEAN ELM SCALE (Gossyparia spuria) - DELAWARE - Crawlers present on elms in an area of New Castle County. (Bray). WISCONSIN - Eggs not hatched in Jefferson County on June 15. Pest noted as common in east central area. (Wis. Ins. Sur.). KANSAS - Crawlers active during past 2 weeks in Barton County, central area. (Martinez).

A HAWTHORN MEALYBUG (Phenacoccus dearnessi) - WISCONSIN - Eggs hatching on hawthorn in Madison area, Dane County. Examination on June 18 showed 9-12 crawlers present beneath mother scales; examination June 12 showed hatch at that time. Few crawlers began moving away June 18 but were not far distant. Egg counts within female revealed 300 plus in varying stages of development. Pest discovered June 8 on hawthorns brought into State and planted in fall 1963. Little known concerning biology, degree of damage caused, and best method of control. These factors prompted destruction of stock. This is first record of species in State. (Wis. Ins. Sur.).

WOOLLY ELM APHID (Eriosoma americanum) - WISCONSIN - Winged forms becoming common in west central area. (Wis. Ins. Sur.). NORTH DAKOTA - Common on elm in northeast and causing considerable curling of foliage. (Frye).

WOOLLY ALDER APHID (Prociphilus tessellatus) - VIRGINIA - Heavy on maple at a location in Newport News. (Amos, Griffin; June 12). NORTH CAROLINA - Infesting maple at a location in Edgecomb County. (Bullock, Robertson).

SYCAMORE LACE BUG (Corythucha ciliata) - DELAWARE - Nymphs present on sycamore in areas of Sussex County. (Burbutis, Crossan).

PLANT BUGS - CALIFORNIA - Largus cinctus californicus adults heavy and Neoborus amoenus scutellaris medium on Modesto ash trees in Kelseyville, Lake County. (Cal. Coop. Rpt.). RHODE ISLAND - Damage typical of Lygus lineolaris heavy on ornamental mint and rose in Richmond, Washington County. (Mathewson).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Infestations moderate in Oneida County. (N.Y. Wkly. Rpt., June 15). PENNSYLVANIA - Damage to gray birch very heavy in sections of Luzerne and Lackawanna Counties. (Andreychick, June 9). Heavy on birch in Beaver County May 29. (Goodman). NEW JERSEY - Adults active in central counties. (Ins.-Dis. Newsltr.).

A GALL WASP (Neuroterus saltatorius) - OREGON - Galls appearing on undersides of oak leaves in Jackson County. Many homeowners using chemical controls. (McLaughlin).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Infesting maple leaves at a location in Alexandria. (Rowell, June 12). CONNECTICUT - Injury to maples a problem in Lakeside, Farmington and Storrs. (Savos). IDAHO - Galls abundant on leaves of planetree maples at a location in Moscow, Latah County. (Manis).

ERIOPHYID MITES - OHIO - Moderate to heavy on Moraine honeylocust in Wayne County, northeast. (Neiswander). NEW MEXICO - An undetermined species causing formation of galls on leaves of ash at Mesilla Park, Dona Ana County; another species causing formation of galls on female flowering parts on cottonwood near Hatch in same county. (N.M. Coop. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Defoliated about 50 percent of mimosas on Dauphin Island, Mobile County. Early infestations reported in Marshall County. (Simms, Seibels, et al.). GEORGIA - Light on mimosa in Spalding County. (Roberts). SOUTH CAROLINA - Eggs just hatched in Chesterfield County; larvae webbing leaves. (Nettles et al., June 16). OHIO - First larvae of season noted on honeylocust in Muskingum County, east central. (Ellis). INDIANA - Some larvae in fifth stage. Infestation very light throughout State; diligent search necessary to find infested honeylocust. (Schuder). IOWA - Feeding on Moraine and Sunburst honeylocust in Des Moines. Wild honeylocust in timber reported defoliated. (Iowa Ins. Inf., June 15).

BAGWORM (Thyridopteryx ephemeraeformis) - ARKANSAS - Hatching underway across southern part of State; hatching expected in northern area during next 2 weeks. (Ark. For. Pest Rpt., June). OKLAHOMA - Activity heavy on variety of ornamentals in Stillwater area, Payne County. (Okla. Coop. Sur.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - COLORADO - Causing heavy damage to ornamental trees and shrubs in Jefferson, Adams and Denver Counties. (Hantsbarger, Jenkins).

A LEAF ROLLER MOTH (Choristoneura zapulata) - NEVADA - Larvae heavy on various ornamental shrubs in Reno, Washoe County. (Bechtel).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Feeding heavily on native hibiscus in Dauphin Island area of Mobile County. (Seibels, Simms).

A FAN PALM MOTH (Litoprosopus futilis) - FLORIDA - Locally damaging to blooms and leaves of Sabal palmetto at Gainesville, Alachua County, June 13. (Mead).

A NYMPHALID (Vanessa carye) - CALIFORNIA - Medium on hollyhocks in Coalinga, Fresno County. (Cal. Coop. Rpt.).

ROSE CHAFER (Macrodactylus subspinosus) - VERMONT - Expected to appear about June 22. (MacCollom, June 15). MASSACHUSETTS - Abundant on many ornamentals in Waltham area, Middlesex County. (Garland, June 12). CONNECTICUT - Appears to be more abundant than in several years. (Savos). NEW JERSEY - Infestation heavy in Madison and Dover, Morris County. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Considerable numbers of adults reported in Dare County area. (Spake, Robertson). OHIO - Heavy numbers noted feeding on rose and grape in Toledo, Lucas County, northwest. (Lyon). WISCONSIN - Considerable damage from adult feeding appearing on wide variety of ornamentals in parts of Sauk County; some activity reported in Chippewa, Jackson, Waupaca and Trempealeau Counties. (Wis. Ins. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - PENNSYLVANIA - Heavy in yew at York, York County; adults emerging. (Negley). NEW JERSEY - Adults appearing. (Ins.-Dis. Newsltr.).

HOLLYHOCK WEEVIL (Apion longirostre) - OHIO - Heavy on hollyhock in Morrow County, central area; 4-5 adults per bud frequently noted. (Lyon).

APHIDS - CALIFORNIA - Lachnus salignus medium on willows in Fresno, Fresno County. Phyllaphis fagi medium on beech trees in nursery in Hayward, Alameda County. (Cal. Coop. Rpt.). ARIZONA - Heavy populations of Aphis nerii continue to damage hedges in Pinal County. Controls not effective. (Ariz. Coop. Sur.). FLORIDA - Myzus sp. light and general on Petunia sp. at Plant City, and Acyrthosiphon porosum locally moderate on rose at Turkey Creek, both in

Hillsborough County. Latter species caused small, deformed blooms on infested roses. (Custead, June 5). MINNESOTA - Damage by various species increasing on trees and shrubs. (Minn. Ins. Rpt.). CONNECTICUT - Unspecified species abundant on many ornamentals. (Savos). RHODE ISLAND - Unspecified species heavy on elm at location in Richmond and Macrosiphum euphorbiae abundant on rose in Kingston, Washington County. (Mathewson).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Light on leaves of crapemyrtle (Lagerstroemia indica) at Orange City (June 9), and on leaves of Elaeagnus sp. at De Land and honeysuckle (Lonicera sp.) at Lake Helen (June 17), all in Volusia County. (Roberts). These are new host records for Florida Department of Plant Industry. (Fla. Coop. Sur.).

FLETCHER SCALE (Lecanium fletcheri) - OHIO - Hatch 90 percent in southeast; many active crawlers under old scales. (Ellis). WISCONSIN - Probably this species, noted on yews, arborvitae and juniper at a site in Jefferson County on June 15; crawlers emerging on yews but not other hosts. (Wis. Ins. Sur.). MINNESOTA - Abundant on arborvitae in Minneapolis-Saint Paul area. (Minn. Ins. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - VERMONT - Crawlers active. (MacCollom, June 15). CONNECTICUT - A problem on roses at Willington, Tolland County. (Savos). NEW YORK - About 75 percent hatched at Ithaca June 8. (N.Y. Wkly. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - NEW YORK - About 50 percent hatched at Ithaca on June 8. (N.Y. Wkly. Rpt.). VIRGINIA - Heavy on eyonymus at a location in Cartersville, Cumberland County. (Rowell, Wilkerson).

COCCIDS - NEW YORK - Unspecified mealybugs prevalent on Taxus spp. in East Aurora area, Erie County; also problem on other ornamentals in Niagara County; causing dieback of Taxus spp. in Centertown Plaza of Elmira, Chemung County. Diaspis carueli heavy on juniper at Penn Yan, Yates County; crawlers appearing. Lecanium spp. extensive on Prunus spp. and Taxus spp. in Chemung County this spring. Unspecified species very active in Nassau County. (N.Y. Wkly. Rpt., June 15). DELAWARE - Young crawlers on Lecanium prunastri present on ornamental prune in New Castle County. (MacCreary, Bray). Young crawlers of Eriococcus azaleae present on azalea in New Castle County. (Bray). FLORIDA - Aonidiella taxus moderate on Podocarpus marcophylla at Davie (June 8) and at Fort Lauderdale (June 9), Broward County. (Clinton). Pseudaonidia clavigera light on Camellia sasanqua at Tampa, Hillsborough County. (Hale, June 8). ARIZONA - Infestation of Aspidiotus cyanophylli noted on variegated euonymus in nursery in Casa Grande, Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - Stomaccocus platani very heavy on Platanus occidentalis in Ukiah, Mendocino County. (Cal. Coop. Rpt.).

AZALEA LACE BUG (Stephanitis pyrioides) - DELAWARE - Abundant on azalea in one area of New Castle County. (MacCreary).

LANTANA LACE BUG (Teleonemia scrupulosa) - FLORIDA - Moderate on leaves of 100 lantana plants inspected at Fort Lauderdale, Broward County, June 5. (Clinton).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy on acacia trees in Patterson, Stanislaus County. (Cal. Coop. Rpt.).

AZALEA WHITEFLY (Pealius azaleae) - NEW YORK - Second generation present on rhododendron in Ithaca area; adults extremely abundant and leaves covered with new eggs. (N.Y. Wkly. Rpt., June 15).

GLADIOLUS THRIPS (Taeniothrips simplex) - ALABAMA - Heavy on commercial planting of gladiolus in Baldwin County; controls applied. (Eden).

SPIDER MITES - NORTH CAROLINA - Injuring leaves of willow oak at a location in Rowan County. (Corriher, Robertson). OKLAHOMA - Tetranychus spp. building up on variety of ornamentals in Stillwater area, Payne County. (Okla. Coop. Sur.).

A TARSONEMID MITE (Tarsonemus setifer) - CALIFORNIA - Heavy on Lavatera assurgentiflora (California tree-mallow) in botanical gardens in Claremont, Los Angeles County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CONNECTICUT - A problem statewide. (Savos). OHIO - Following specimens taken in 12 light traps in Toledo, Lucas County, northwest section, on June 15: Aedes vexans 97, A. dorsalis 1, Culex restuans 9, C. pipiens 31, C. territans 4, Anopheles punctipennis 6 and undetermined species 5. Aedes spp. heavier than Culex spp. this season. (Brockway). MICHIGAN - Moderate to high mosquito populations reported from many areas, as well as in blacklight trap catches. (Dowdy et al.). WISCONSIN - Little change noted since situation reported in CEIR 14(25):664. (Wis. Ins. Sur.). MINNESOTA - Total of 101 larval collections made in Metropolitan Mosquito Control District during week ending June 13. Aedes vexans found in 67 collections and young, unidentifiable Aedes spp. in 57; 5 species collected. In light trap collections, 7,693 females taken; determined as follows: Aedes vexans 7,290, A. cinereus 97, A. sticticus 47, Culiseta inornata 89 and Culex restuans 35. Sixteen species taken in light traps. In 45 15-minute bite collections, 484 females collected; 363 A. vexans, 98 A. sticticus and 11 A. cinereus. In 540 5-minute bite collections, 5,242 females collected; 3,571 A. vexans, 1,041 A. sticticus, 259 A. cinereus, 88 A. trivittatus and 56 A. fitchii; 18 species collected. Peak population of Aedes mosquitoes reached late in week of June 13. Mansonia perturbans adults appeared week ending June 20. (Minn. Ins. Rpt.). MISSISSIPPI - Troublesome in delta area. (Young, Bennett). ARIZONA - Treatments applied along Colorado River in Yuma County to control heavy populations. (Ariz. Coop. Sur.). NEVADA - Culex tarsalis larvae heavy in pond in southwestern Las Vegas, Clark County.(Milner).

FACE FLY (Musca autumnalis) - IOWA - Ranged 0-10 (averaged 4) per animal in most of 32 herds checked between Ames and Cedar Rapids on June 12; checks made in late afternoon under clear skies. Ranged 4-8 per animal on group of calves in pasture near Tama; 6-8 noted on single Angus cow in same pasture. (Iowa Ins. Inf.). ILLINOIS - Varied 0-6 (averaged 2) per face in northwest district. Weather conditions unfavorable for activity. (Ill. Ins. Rpt.). INDIANA - Adults ranged 0-14 (averaged 3) per face on cattle in southern quarter of State (Bram, Dobson); ranged 0-30 (averaged 5) per face in north central section (Dobson). MARYLAND - Generally light in Frederick County; ranged 2-7 per head on 6 dairy herds checked. Heavy on beef cattle on farm near Glenn Dale, Prince Georges County. (U. Md., Ent. Dept.). VERMONT - Counts per animal ranged 10-15 in Bennington County June 9 and 15-20 in Addison County June 11. Population building up rapidly (June 15). Continues at expected levels; causing severe irritation to pastured cattle. (MacCollom).

HOUSE FLY (Musca domestica) - VERMONT - Populations exceptionally high in many locations. (MacCollom). SOUTH CAROLINA - Unusally numerous around dairy in Dillon County. (Nettles et al., June 16). OKLAHOMA - Populations remain unchanged in Payne County. Reported increasing in McCurtain County. (Okla. Coop. Sur.). UTAH - Common in Kanab area, Kane County. (Knowlton).

HORN FLY (Haematobia irritans) - INDIANA - Adults ranged 25-300 (averaged 100) per head on cattle in southern quarter of State (Bram, Dobson); ranged 60-150 per head on untreated dairy heifers in north central section (Dobson). ILLINOIS - Varied 0-100 (averaged 32) per animal in northwest district. (Ill. Ins. Rpt.). IOWA - Ranged 0-5 (averaged 3) per animal in most of 32 herds checked from Ames to Cedar Rapids on June 12; checks made in late afternoon under clear skies. Ranged 0-2 per animal on group of calves in pasture near Tama, with more than 100 on back of single Angus cow in same pasture. (Iowa Ins.

Inf.). KANSAS - Ranged from less than 25 to over 150 per animal on cattle in eastern portion of State. (Peters). OKLAHOMA - Counts of 750 per yearling steer, 500 per cow and 2,500-3,000 per bull noted in Payne County. (Okla. Coop. Sur.). MISSISSIPPI - Reported heavy on livestock in delta area. (Young, Bennett). MISSOURI - Light to moderate on cattle in southwest area. (Houser, Thomas, Wood). GEORGIA - Averaged 176 per animal on 3 untreated herds in Spalding County. Effective treatment of 13 other herds reduced numbers to less than 10 per animal. (Roberts).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Troublesome in delta area. (Young, Bennett). OKLAHOMA - Populations increased somewhat in Payne County from those reported previous week. (Okla. Coop. Sur.). IOWA - Ranged 0-5 (averaged 1) per animal on most of 32 herds checked between Ames and Cedar Rapids on June 12; checks made in late afternoon under clear skies. Ranged 20-30 per animal on group of calves in pasture near Tama; none noted on single Angus cow in same pasture. (Iowa Ins. Inf.). ILLINOIS - Varied 0-3 (averaged 1) per animal in northwest section. (Ill. Ins. Rpt.).

TABANIDS - DELAWARE - Chrysops atlanticus and Tabanus nigrovittatus adults abundant on marshes. (Catts). OHIO - Chrysops niger apparently responsible for anaphylactic shock caused by biting woman in Akron. Det. by A. Stone. (Rings). INDIANA - Tabanus sp. adults averaged 1 per 20 cows in Dubois County, southwest. (Dobson). GEORGIA - Unspecified species averaged less than one per animal in Spalding County. (Roberts).

CATTLE GRUBS (Hypoderma spp.) - INDIANA - Considerable adult activity noted in southern and north central sections. Occasional grubs of H. lineatum still found in cattle in Dubois County, southwest. (Dobson).

AN ASSASSIN BUG (Triatoma sp.) - NEW MEXICO - Problem in homes in Truth or Consequences area of Sierra County. Several reports of individuals being bitten while asleep. (N.M. Coop. Rpt.).

FLEAS - SOUTH CAROLINA - Unusually numerous in Clemson area. One of first reports of season. (Nettles et al., June 16).

BLACK WIDOW SPIDER (Latrodectus mactans) - MICHIGAN - Reported on 3 occasions recently in Charlevoix County. This may be an area record for species in State. (Janes).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Infestations reported declining in southeastern counties. (Okla. Coop. Sur.). NORTH DAKOTA - This species and Otobius megnini (ear tick) taken from calves shipped to Fargo, Cass County, from out of State. (Noetzel).

AMERICAN DOG TICK (Dermacentor variabilis) - MICHIGAN - Numbers continue moderate in Upper Peninsula. (Nyquist).

TICKS - MISSISSIPPI - Heavy infestations reported on livestock in delta section (Young, Bennett). MINNESOTA - Continue troublesome in central and northwest districts. (Minn. Ins. Rpt.).

A CHIGGER (Eutrombicula alfreddugesi) - ALABAMA - Becoming annoying to man on lawns and grasses in Lee and other central counties. (Barwood).

HOUSEHOLD AND STRUCTURAL INSECTS

LARDER BEETLE (Dermestes lardarius) - MICHIGAN - Many localized but widely spread infestations reported; especially noted in Gladwin and Iosco Counties. (Pennock, Devenport, Janes). WISCONSIN - Considerable activity reported in Calumet and Winnebago Counties. (Wis. Ins. Sur.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - NORTH CAROLINA - Infesting cereals at a location in Halifax County. (Peedin, Wright).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - PENNSYLVANIA - Nuisance about homes in Susquehanna and Bradford Counties. (Gesell).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - PENNSYLVANIA - Nuisance in homes in Susquehanna and Bradford Counties. (Gesell).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Adults appeared in kitchen of home at Frederick, Frederick County. (U. Md., Ent. Dept.).

WOOD COCKROACHES (Parcoblatta spp.) - CONNECTICUT - Attracted to lights in many homes; no controls recommended. Noted in homes in Storrs, New London and Waterford. (Savos).

SPRINGTAILS - MARYLAND - Unusually abundant in and around homes and apartment buildings at 2 locations in Prince Georges County. (U. Md., Ent. Dept.). NEW JERSEY - Continue a problem in many areas. (Ins.-Dis. Newsltr.).

PAVEMENT ANT (Tetramorium caespitum) - NEW JERSEY - Winged forms causing some concern to homeowners. (Ins.-Dis. Newsltr.). MARYLAND - Winged forms appeared around homes in Baltimore and Montgomery Counties. (U. Md., Ent. Dept.). VIRGINIA - Workers and reproductives very abundant in home at Dayton, Rockingham County. (Tarpley, Peterson).

OLD-HOUSE BORER (Hylotrupes bajulus) - MINNESOTA - Found in home in Minneapolis. This is first report of species in State. (Minn. Ins. Rpt.).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Medium inside lodge building in Pinehurst, Fresno County. (Cal. Coop. Rpt.).

CARPENTER ANTS - CONNECTICUT - Unspecified species a problem in homes in Mansfield, Storrs and Glastonbury. (Savos). VIRGINIA - Camponotus pennsylvanicus reproductives very abundant in home in Westmoreland County. (Tarpley, Nicholas). NORTH CAROLINA - Queen of Camponotus sp. collected in Cabarrus County. (Bowles, Robertson). MICHIGAN - Unspecified species reported from several areas. (Nyquist, Abel, Bierlein, Machiele). WISCONSIN - C. pennsylvanicus a problem in Fond du Lac County. (Wis. Ins. Sur.).

STORED-PRODUCT INSECTS

MEAL MOTH (Pyralis farinalis) - WYOMING - Light in grain-storage warehouse at Torrington, Goshen County. (Marks).

A LATHRIDIID BEETLE (Lathridius crenatus) - OREGON - Infesting pet food in a store in Hood River, Hood River County. (Zwick).

BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Several species, mostly Hippodamia convergens, very abundant in alfalfa and grain sorghum fields in Animas-Cotton City area and Virden Valley, Hidalgo County. (N.M. Coop. Rpt.). WYOMING - Adults of several species ranged 18-25 per 100 sweeps in alfalfa in Platte, Converse and Goshen Counties. (Marks). INDIANA - H. convergens adults ranged 1-3 per 10 sweeps in alfalfa in southwest area. (Bram). ARKANSAS - Several species, mainly H. convergens, most numerous predators in all cotton fields checked. (Ark. Ins. Sur.). ALABAMA - Small numbers of Brachyacantha quadripunctata var. flavifrons appearing on pecans. Large numbers of B. ursina noted on pecan trees in Barbour County, with few observed in Elmore County. Olla abdominalis plagiata common on pecans throughout State; feeding on aphids. (McQueen).

A MELYRID BEETLE (Collops hertella) - OREGON - Numerous in a Sherman County field of wheat. (Lattin).

GOLDEN-EYE LACEWING (Chrysopa oculata) - INDIANA - Adults averaged 1 per 10 sweeps in southwest area alfalfa. (Bram).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 35 per 100 sweeps in alfalfa in Platte, Converse and Goshen Counties. (Marks).

FLOWER BUGS (Orius spp.) - NEW MEXICO - Very abundant in terminals of cotton plants checked near Animas, Hidalgo County. (N.M. Coop. Rpt.).

BUMBLE BEES - MASSACHUSETTS - Active in cranberry bogs in Wareham area. (Tomlinson).

A MINUTE EGG PARASITE (Trichogramma minutum) - ALABAMA - This parasitic wasp being observed and studied as to effect on eggs of bollworms (Heliothis spp.) appearing on crimson clovers, corn, cotton and tomatoes at Crossville, Belle Mina, Auburn and Headland. Highest destruction of bollworm eggs being observed in Auburn area, with extremely good controls observed in all areas. Parasitism of eggs first reported on crimson clover at Crossville, April 21; parasitism has since been ranging 50-95 percent in limited studies made to date in Auburn area. (Watson).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Adults feeding on grapevines, rose bushes and other plants. (Ayers). SOUTH CAROLINA - Adults active since June 8 in Oconee, Greenville and Dillon Counties. (Nettles et al.). MARYLAND - First adults of season observed June 15 on trees at Dameron, St. Marys County. (U. Md., Ent. Dept.). NEW JERSEY - Adults reported June 10 near Wrightstown, Burlington County. (Ins.-Dis. Newsltr.). ILLINOIS - First adult of season collected in trap at Scott Air Force Base, June 8. This is also first collection at base. (Matzenbacher). MICHIGAN - Traps being placed in Metropolitan Detroit, Monroe County, Battle Creek and surrounding rural area including parts of Calhoun, Barry and Kalamazoo Counties. Emergence not expected for 2 weeks. (Turner).

ROSE CHAFER (Macrodactylus subspinosus) - RHODE ISLAND - Abundance continues spotty; heaviest in Kent and Providence Counties. (Mathewson, King). NEW JERSEY - Heavy in Madison and Dover, Morris County. (Ins.-Dis. Newsltr.).

A CUBAN MAY BEETLE (Phyllophaga brunneri) - FLORIDA - Reached high populations in Miami area, Dade County, during May; range extended 12 miles from original find in 1959. List of known host plants expanded; found feeding on numerous ornamentals as well as on citrus. Recent review of problem by State and Federal offices shows need for additional control work. (Fla. Coop. Sur.).

SCARABS - NORTH CAROLINA - Adult Polyphylla occidentalis collected in Wayne County; det. by D. A. Mount (Wellons); adult Pelidnota punctata collected in Davie County (Williams, Mount); and adults of Strigoderma arboricola collected in Clay County in June (Bowers, Mount).

BEET ARMYWORM (Spodoptera exigua) - GEORGIA - Heavy on carelessweed (Amaranthus sp.) in Colquitt County. (Snow, Hodges).

AN APHID (Capitophorus glandulosus) - VIRGINIA - Light to heavy on many plants of mugwort wormwood (Artemisia vulgaris) in Arlington County. Found almost entirely on underside of leaves causing yellowing when abundant. Collected by M. D. Leonard and H. H. Shepard June 14. Det. by M. D. Leonard. This is first record for State. Previously collected by Dr. Leonard in District of Columbia and New Jersey. (Dorward).

PERIODICAL CICADAS (Macicada spp.) - IOWA - Four specimens of Brood IV of 17-year species collected in Cass County; noted flying in cornfield. (Iowa Ins. Inf., June 15). OKLAHOMA - Reported from Garvin, Grady, Craig, Kay, Tulsa and Okmulgee Counties. (Okla. Coop. Sur.). MISSOURI - M. septendecim Brood IV adults continue active in west central and northwest counties. (Houser, Thomas, Wood).

AN ANNUAL CICADA - IOWA - Collected in Eldora, Hardin County, in June; species usually appears in late July. (Iowa Ins. Inf.).

A POWDER-POST TERMITE (Cryptotermes cavifrons) - FLORIDA - Attracted to lights at Gainesville, Alachua County, June 13. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

SPRINGTAILS - VIRGINIA - Tremendous numbers present in earthworm beds locally in Hopewell, Prince George County. (Amos, June 14).

EUROPEAN EARWIG (Forficula auricularis) - IDAHO - Becoming very abundant in Moscow area; immatures vary from first to third instars. (Manis).

A LEAFCUTTING BEE (Megachile rotundata) - IDAHO - First appearance in fairly good numbers occurred in Arena Valley, Canyon County, June 12. Cold, wet weather since then delayed all emergence and nesting activities. (Waters).

AN ANDRENID BEE (Andrena viburnella) - SOUTH CAROLINA - Collected for first time in State by R. J. Bennett in Laurens County in mid-March. Det. by K. V. Krombein. (Nettles et al.).

MILLIPEDS - GEORGIA - Continue a nuisance in Atlanta area; numerous calls received. (Ridley).

INTERCEPTIONS

KHAPRA BEETLE (Trogoderma granarium) - MINNESOTA - Found in holds of ship carrying general cargo into Duluth. Complete fumigation of ship made; ship and cargo released after second examination showed no live insects. (Minn. Ins. Rpt.).

CORRECTIONS

CEIR 14(25):641 - SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MASSACHUSETTS - Second line: (Arrastumus ocellaris first) should read (Errastunus ocellaris first).

CEIR 14(25):640 - CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - Delete Parke County as new county record. Larvae not O. melanopa. Also delete county from DETECTION section on page 636.

CEIR 14(25):644 - A LEAFHOPPER (Errastumus ocellaris) - Should read (Errastunus occelaris).

CEIR 13 INDEX - Page 25, third column, line 3 from bottom - Errastumus ocellaris should read Errastunus ocellaris.

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Caenocnemis pomonella (codling moth)	Chortagrotis auxiliaris (gray cutworm)	Epilysme acres (salt-marsh caterpillar)	Faronta diffusa (small head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege comstalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Pelidnota sancta (rainbow-striped armyworm)	Prodenia ornithogalli (common armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
ARKANSAS																							
Hope 6/11-17				0					0	19					0				4				
Morrilton 6/11-17				3					0	23					90				51				
Kelso 6/11-17				0					0	1					3				1				
FLORIDA																							
Gainesville 6/16			BL					4		1	2					2		1					
GEORGIA																							
Tifton 6/4-10			BL						7	13							0	0					
Tifton 6/11-17			BL						2	8							0	0					
ILLINOIS (County)																							
Champaign 6/12-18	51-87	0.69"		81						2					97	21			918				
INDIANA (Counties)																							
Posey 6/9-15										0				6			8	3	726				
Vanderburgh 6/9-15				15						0	0			2	15	12	0	0	401				
Harrison 6/9-15				31						4	0			3	65	1	26	26	269				
Dubois 6/9-15										0				0			1	4	340				
Sullivan 6/9-15				10						0	0			1	23	3	0	1	237				
Greene 6/9-15										2				0			7	6	192				
Jackson 6/9-15				3						0	0			0	8	0	3	4	243				
Switzerland 6/9-15										0				7			5	8	220				
Franklin 6/9-15				57						0	0			30	19	2	10	4	215				
Parke 6/9-15										0				32			18	9	285				
Shelby 6/9-15										0				0			1	0	71				
Hamilton 6/9-15										0				9			1	0	315				
Tippecanoe 6/9-15				168						0	0			55	88	66	1	1	2576				
Wells 6/9-15										0				5			0	0	1144				
Jasper 6/9-15				44						0	0			0	7	0	0	1	521				
Allen 6/9-15										0				14			0	0	607				
Lake 6/9-15										0				0			1	0	205				
Lagrange 6/9-15				13						0	0			1	15	2	0	0	186				
KANSAS																							
Hays 6/11, 13				1	8		2						spp.						4				
Garden City 6/10,12,15				12	610		18			5			12		5				9				
Manhattan #1 6/13-19				81	69		1			17			267		321	61			1070				
Manhattan #2 6/12-13,15				21	36		8			24			2172		148	90			396				
Mound Valley 6/11, 13				5						16			25		20	8			30				
Wathena 6/12, 15				2	2								58		10	12			36				
MARYLAND																							
Centreville 6/10-16				17						0				37			11 spp.		14				
MASSACHUSETTS																							
East Wareham 6/14			BL																270				
MICHIGAN (Counties)																							
Monroe 6/9-15			BL	4										15					37				
Kalamazoo 6/9-15			BL	7										27					121				
Jackson 6/9-15			BL	3										31					21				
Livingston 6/9-15			BL	17										42					80				
Newaygo 6/9-15			BL	9															212				
Chippewa 6/9-15			BL	14															148				
Menominee 6/9-15			BL	3															41				

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Temperature °F	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Helicoverpa zea (corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Lonostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Pectinophora gossypiella (pink bollworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tobacco hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
MISSISSIPPI																								
Stoneville 6/13-19	71-99	0.08"	MV	74		11		14	7	28						27	91		16	24		19		
Stoneville 6/13-19	71-99	0.08"	BL	57		5		1	9	21						17	88		3	16		3		
MISSOURI																								
Columbia 6/4-7				71						5					25	47		8		675				
Portageville 6/13-19				18						14					0	77	49			197				
NEBRASKA																								
Bushnell 6/3-8				1	4107											87				23				
Kearney 6/2-8				5	816				2						44	40			1	90				
North Platte 6/4-10				7	5253										2	199				139				
Ogallala 6/4-10				22	5254											1164				931				
NEW JERSEY																								
Evesboro 6/8,11,15,18									2	3					11					22				
NORTH DAKOTA																								
Fargo 6/12-19														24	11					661				
Bowman 6/12-19														104						28				
OHIO																								
Wooster 6/19	61.2	0.21"	BL	2		7														20				
Reynoldsburg 6/19			BL	3		5														10				
Columbus 6/18			BL	2		3														30				
SOUTH CAROLINA (Counties)																								
Oconee 6/6-12				1				5		2						13	71		1	31				
Florence 6/11-17									4	28														
SOUTH DAKOTA (County)																								
Brookings 6/18													2							35				
TEXAS																								
Brownsville 6/11-18			5 BL	1		185		410	9	995	1522		660			4	55	75	71	15		1469		
Waco 6/13-19				53		8		49		132	18					33	32			14		21		
WISCONSIN																								
Platteville 6/8-16			BL	4											112	40				2000				
Mazomanie 6/8-15			BL												147	11				40				
Madison 6/9-15	43-90		BL		2																			
Madison 6/11-16	43-90		BL	6											12	10				145				
Middleton 6/9-15			BL		28																			
Middleton 6/11-16			BL	2											11	11				75				
De Forest 6/9-15			BL												32	1				81				
Janesville 6/9-15			BL												19					104				
Evansville 6/9-15			BL												34					171				
Beaver Dam 6/1-7			BL																	29				
Fox Lake 6/1-7			BL												2					168				
Wayne 6/9-15			BL																	407				
Theresa 6/9-15			BL												8					363				
Nenno 6/9-15			BL												3					190				
Waldo 6/9-15			BL	5											4	15				414				
Rosendale 6/4-9			BL												7					303				
Ripon 6/6-9			BL												7					133				
Gays Mills 6/9-15			BL		1																			

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

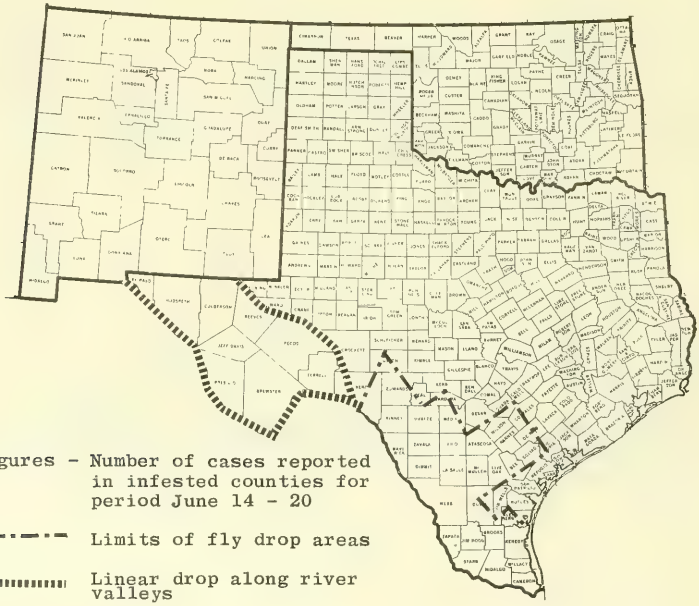
The Southwest eradication area was completely free of screw-worm during the period June 14-20. This is the first week since week ending March 7 that no screw-worm cases were discolsed in the eradication area. The Republic of Mexico reported 58 screw-worm cases from the States of Sonora (13), Chihuahua (19), Coahuila (3), Nuevo Leon (5), Tamaulipas (10), Veracruz (7) and Durango (1). In ARIZONA, 4 cases of screw-worm were reported. Two cases in Pima County and one each from Cochise and Graham Counties. A total of 96,633,850 sterile screw-worm flies was released: 27,362,250 in Texas, 1,556,000 in New Mexico, 3,554,000 in Arizona and 64,161 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

			Negative Cases*		Ratio of Cases Positive to Negative**	
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,970	15,487	80	1,809	2,462.5:100	856.1:100
1963	137	1,622	129	3,757	94.2:100	43.2:100
1964	0	18	134	3,669	0.0:100	2.2:100

* The number of cases not screw-worm is an index of the efficiency of the reporting system.

** A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period June 14 - 20

Limits of fly drop areas

Linear drop along river valleys

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